

# THE JOURNAL OF MEDICAL EDUCATION

OFFICIAL PUBLICATION OF  
THE ASSOCIATION OF AMERICAN MEDICAL COLLEGES



JULY 1956 • VOLUME 31 • NUMBER 7  
IN TWO PARTS—PART ONE

- On Becoming an Anatomist.....Sam L. Clark**  
**Teaching Psychoanalytic Psychiatry to  
Medical Residents.....Samuel Silverman**  
**The Work of a Department of Surgery in a  
Postgraduate Medical School.....Ian Aird**  
**The Undergraduate Teaching of Ophthalmology.....Alan C. Woods**  
**Medicine in the 19th Century.....T. Clifford Allbutt**  
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## The Journal of MEDICAL EDUCATION



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Dr. Louis M. Hellman revised the sections on anesthesia and analgesia, uterine inertia, rupture of cesarean section scar and placental morphology, contributed much data from his own clinic, shared many tedious editorial chores and rendered other invaluable assistance in the over-all revision.

Dr. Georgeanna Seegar Jones has rewritten the several sections on endocrinology, Dr. Roy G. Holly, the sections on iron metabolism and anemia, and Dr. Alan F. Guttmacher the chapter on multiple pregnancy. New material on Rh incompatibility is supplied by Dr. Milton Sacks, the embryology chapters have been revised by Dr. George W. Bartelmez and Dr. Leon C. Chesley has critically reviewed the long chapter on toxemias of pregnancy to include modern developments.

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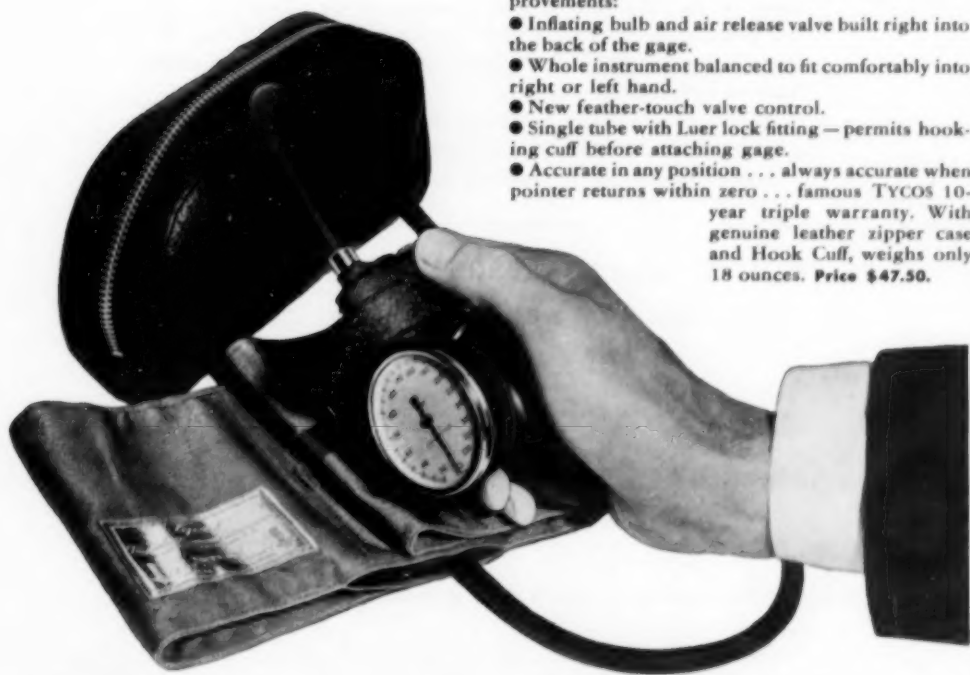
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**T**HE YEAR 1956 marks the 105th birthday of the Taylor Instrument Companies of Rochester, N. Y. Starting as a tiny partnership for making household thermometers and barometers, the business of Kendall & Taylor showed an inventory in 1851 listing total assets at \$919.00, of which \$600.00 was for "knowledge of the business." The company has since become a multi-million dollar corporation manufacturing some 8,000 variations of its basic products and distributing them all over the world.

George Taylor came from Stoddard, N. H., and opened his business at the age of 19. His original journal, now in the company's archives, reveals him as a meticulous young man who made his entries in shillings and pence after the fashion of New Englanders who kept the old British monetary system long after the rest of the country had changed to dollars and cents.

Although instruments for consumer use comprise the oldest part of the present Taylor line, by far the largest is the industrial instrument division, which began in 1896 with the acquisition of a firm making mercury-in-glass industrial thermometers. In 1905, the first controllers were added to the industrial line, an event which marked a highly significant turning point in the flowering of continuous industrial processing in this country. The continuous processing of chemicals, photographic film, textiles, foods, milk, plastics and other synthetics, petroleum, paper, etc., now requires such involved and precise control that to return to hand methods would literally bring the American economy to a standstill until the old-fashioned methods of batch processing with hand-operated valves could be installed. Taylor manufactures instruments that operate both pneumatically and electronically.

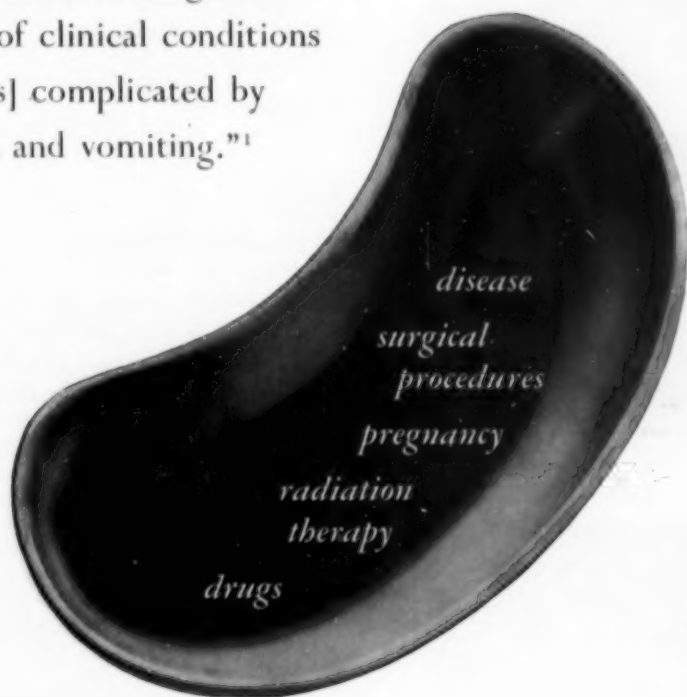
In 1905 the first Tyco Aneroid Sphygmomanometer was introduced. It was produced by an English subsidiary, Taylor-Short & Mason Ltd. and made use of a recently developed arm band and a previously marketed portable gas pressure gage.

Ever since it made a contract with the U. S. Navy just prior to the Spanish-American War, Taylor has been contributing to the defense of the nation. During World War II such vital processes as synthetic rubber and high octane gasoline couldn't have met production schedules without the kinds of control equipment made by Taylor.

The tiny thermometer company of 1851 is now the largest instrument company of its kind in the world, serving the home, the medical profession and industry with instruments to indicate, record or control temperature, pressure, flow, force, liquid level and humidity. Branch offices cover the country, and the manufacturing facilities of subsidiaries in Canada, England and Australia serve other parts of the world.

# THORAZINE\*

"An effective antiemetic agent for  
a wide range of clinical conditions  
[and situations] complicated by  
nausea and vomiting."<sup>1</sup>



1. Moyer, J.H., et al.: Arch. Int. Med. 95:202 (Feb.) 1955.

'Thorazine' is available in ampuls, tablets and syrup (as the hydrochloride), and in suppositories (as the base).



Smith, Kline & French Laboratories, Philadelphia

\*T.M. Reg. U.S. Pat. Off. for chlorpromazine, S.K.F.



from

## POETRY...

"...in today already walks tomorrow."

COLERIDGE



to

## PHILOSOPHY...

"...most human activities advance by virtue of contributions from many different types of individuals, with vastly different endowments, working at different levels. Medical investigation is no exception to this rule."<sup>\*</sup>



to

## PHARMACEUTICALS

"In the research activities of the pharmaceutical manufacturers, therapeutic trends based on fundamental advances in biology and medicine clearly modify continually the subjects and directions of research."<sup>\*\*\*</sup>

*H. L. Daiell*

H. L. Daiell, M.D.  
Scientific Director

P. S. Lakeside Laboratories specializes in the synthesis of new and distinctive compounds designed for "tomorrow's" therapy of cardiorenal, gastrointestinal, ventilatory and other disorders.

<sup>\*</sup>The American Foundation: Medical Research:  
A Midcentury Survey, Boston, Little, Brown  
and Company, 1955, vol. 1, p. XXXI.

<sup>\*\*\*</sup>*Ibid.*, p. 600.

# On Becoming an Anatomist

SAM L. CLARK

**A**MONG FACULTIES of medical schools those who practice anatomy represent a group apart. Other than the contributors to popular magazines and TV programs, they are usually the first to introduce aspiring neophytes to the mysteries of medicine; and they stand in a position to interpret to these not only "the fabric of nature" but the spirit of scientific investigation and of medical practice. Though annually realizing the truth of Carl Lashley's remark that "the students who are worth teaching don't need it," anatomists remain attentively on call as interpreters and guides and to stimulate the habit of inquiry in the young student who must not only store in memory a large amount of information but must increase his ability to sort out the relevant from the irrelevant, and to do his thinking, (as John Ransom said of science at its best) with complete awareness of when he resorts to hypothesis.

Suiting the broadness of his responsibilities the anatomist is, as the anthropologist might describe him, the most "foetalized" of medical men; this not denoting any lack of inde-

pendence or maturity but implying the possession of sufficiently generalized potentialities, based on wide interests and experience, to allow him to direct medical students with diverse training and to discuss principles basic to all fields. Or to put it another way, if all types of medical men save one were to be wiped out by some disaster, say an atomic bomb, the best to be spared would be the anatomist who with his insatiable curiosity about form and function would cause the various branches of medicine to rise like the phoenix from the ashes, and thus recapitulate the real history of modern medical development since Vesalius.

Anatomists, standing at the head of the line of medical education, as it were, might be expected to recruit most easily from the students of medicine. But less than 40 per cent of the listed anatomists have the M.D. degree and only 30 per cent of staff members of anatomy departments. In partial explanation for this apparent lack of attraction of the M.D. it might be suggested that in anatomy first impressions are not always sufficiently appealing, but there are also the glamour and practical value of the clinical years which come to the medical student as a final view. Then, since a new M.D. seems of little use unless its owner can practice, minimum qualifications for that

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must be met; and on the way to this there are encountered the demands of certain boards, which few can resist, that a given number of years of clinical training follow completion of medical school. By the time the usual fresh M.D. has finished even one year of internship let alone a residency program he can scarcely be expected to attach himself to an anatomy department, if for no other reason than that he can not therein practice medicine, a thing which he and his family have been expecting him to do for years. The anatomy department, therefore, has to catch the *unusual* M.D. soon after graduation or put a maggot in his brain while he is a student if he is to enter the field.

#### Recruiting methods

Contrast for a moment the methods of recruiting staff used by the different fields of academic medicine. The clinical departments and the departments of pathology have the enviable privilege of offering a year's training to the new medical graduate at no cost to the departments; with the further privilege of screening those who complete the internship and of offering another year or so of experience without much financial support to the best qualified! And the young men and women compete for these privileges, and should! Anatomy and the other basic sciences of medicine can properly recruit from students in graduate programs and they do, but from graduate fields the student of biology or chemistry with a Ph.D. is most commonly absorbed into the teaching ranks in his chosen subject, and not enough graduate students have in the past pursued the degree in anatomy to provide a sufficient supply. This source is increasing however. In five year periods over the last 25 years the number of

Ph.D.'s in anatomy were 30, 38, 43, 54 and 136.

In contrast with the apprentice-like training in the clinical fields, to approach a potential recruit who possesses a new degree, the anatomy department must have available a fellowship or instructor's position with a salary sufficient to be an attraction, or at least sufficient to provide for a man, his wife and perhaps family.

#### Prospects

And what can the recruiting anatomist say to the candidate about his prospects? Aside from assuring him he can get a job and presenting the various allures of teaching and research he can tell the new anatomist that after he has been around awhile some one ahead of him may move on to another school or die and he might get a promotion and a raise—or at least a promotion. He can further assure him that even when he becomes head of a department he will be likely to receive less for his services than his colleagues who are full time heads of clinical departments in the same school.

The recruiter can also say to the anatomist he must be prepared to leave "home" perhaps permanently, for the habitat in which anatomists thrive is not generally distributed. A man or woman with an M.D. can practice medicine in literally thousands of locations, allowing both his interest in the medicine of a community and his love of a countryside or a city to sway him in the selection of a location. The new Ph.D. may find congenial employment in hundreds of colleges and universities and commercial establishments in a wide choice of environments. If either becomes an anatomist, however, he has less than a 100 medical schools to



which he may become attached, and obviously when he is in the mood for selection he does not have the choice of a place in many of these. This undoubtedly has its effect in limiting the number of graduates that enter anatomy. Furthermore, once started on his career, if the young anatomist lets his attachment to a school or city keep him from moving to other places to accept offers of positions with greater income and equal or better scientific opportunity in a department of biology he may stay in a lower income tax bracket from failure of his university to recognize his real worth to the school or his own pressing needs.

In spite of its restricted ecology anatomy does attract people from medicine as well as other fields, particularly from biology, but many of those who pay dues to the Society of Anatomists do not teach the subject. The American Association of Anatomists includes in its current list around 1,000 members. Only about 50 per cent of these occupy teaching positions in anatomy departments; about 15 per cent have teaching appointments, another 5 per cent have teaching positions in medical school preclinical departments other than anatomy and 8 per cent are in clinical fields. Then there is a miscellaneous group of about 7 per cent who have become Emeritus, or hold a scattering of nonanatomical positions ranging from animal husbandry to oceanography. Nearly one per cent of the anatomists are deans or college presidents!

#### "Charms"

In spite of the few disadvantages a newcomer to anatomy finds the charms of the field are many. The privilege of research (which many are delighted to find is also con-

sidered an obligation) and the rewarding experiences of teaching combine well in anatomy to make a way of life worth seeking. Seekers after truth in many ages and lands have happily foregathered as teachers and students. But commonly outside of scientific fields, and at times under the very eaves of the sanctuary, individuals speak of teaching and research as if they are permanently separate, expressing surprise at the insistence that a teacher must have time and inclination for creative work. Many of us have faced minor embarrassment around commencement time in being asked by well meaning friends or family what we plan to do now that school is out. On the other hand, as Dean Berry has remarked, the scientist often regards teaching "as an ill-fitting garment which a research worker may or may not wear with comfort." It is not too surprising to find such varied opinions; there were *five* blind men you recall, who went to see the elephant. But he is nearer the truth who asserts that teaching and research are inseparable and that there is no life in medical teaching when the spirit of inquiry departs from it. While the capacity to do research does not guarantee the effectiveness of a teacher, a lack of interest in research or even a lack of time for doing it will eventually diminish his effectiveness. These assertions may seem unduly dogmatic but study of the history of the developments in medicine, or in any field of science will support them.

In the questionnaires sent to current medical students 78 per cent expressed the opinion that their teachers were *less* effective if they had research interests. [It is notable that students at a medical school do not hear much about the research in progress around them during their

anatomical courses, and may not be good judges as to which of their teachers possess strong research interests.] On the other hand 89 per cent of the chairmen of departments think teachers with research interest more effective. The students restore our confidence a bit in their judgment (even though they muddy up the clear stream of statistics) by 76 per cent of them stating that the quantity of instruction they received was *not* diminished by the research of the teacher and 89 per cent stating that the quality was *not* decreased by research.

In line with the broadness of interest required of the anatomist in teaching, new recruits to the field may find it appealing that in research there are no limits to the areas that can be explored by them. Perusal of one of the programs of the Anatomical Society will verify that, or a study of the Teaching Institute's analysis of current research programs in progress. In recent times anatomists have contributed much of the basic understanding of endocrines and of vitamins. They have laid foundations in hematology and in neuroanatomy and neurophysiology. Classic descriptive as well as experimental embryology owes much to them, and in this field they have upheld the hands of the surgeon as he has developed vascular and cardiac surgery. From their major society smaller groups have splintered off, and yet meet alongside, because of concentrated interest in tissue culture and cytochemistry. Though claims are being staked by biophysicists, physiologists and others, the new fields opening in electron microscopy are anatomical frontiers, as exciting as must have been the work with the light microscope a century ago when the Abbe condenser and new staining methods

made possible the testing of Schleiden and Schwann's cell hypothesis.

### Teaching

For the new anatomist entering the field there are of course the charms of teaching. What place of greater challenge could there be than at the very beginning of the students' medical career? To associate constantly with young people as they acquire knowledge and maturity and adjust their philosophies, and to have a part in this as a scientific interpreter is rewarding in itself. And now and then a student acquires the professor's interest in teaching, or wants to take the lead in breaking trail along paths of inquiry and proceeds further than his teacher's time and training would ever allow. The professor who sees the accomplishments of his student experiences the joy of the sower whose seed falls on good ground and brings forth a hundred-fold—(even though the growth may appear to other nonbiologically minded folk as a case of spontaneous generation). But not all the seed which falls on good ground is good seed, and tares grow up as well. If our teaching is ineffective in spots could it be because we, being short-handed, persist in teaching the same courses in the same way? From year to year at least 73 per cent of the anatomy staff members stay in the same courses and 87 per cent of the professors. Perhaps in many instances that is the best, but only 42 per cent of the staff members expressed a preference for this arrangement. Maybe that other 30 per cent who would like to teach another course now and then would make it more valuable to the students and inspire some to become anatomists! Courses taught without interest easily become stereotyped. Stereotypy in

pursuits which should be thoughtful is deadening. In anatomy no policies of teaching and only certain specimens should be cut and dried.

Discussion of a possible need for training schools or workshops for new anatomists occurred in the Teaching Institute and maybe such a program would attract people to teaching anatomy and improve their work when in it. As this Institute will no doubt prove, examination of teaching methods have value to old and new anatomists. However in any program planned to teach teachers to teach, a careful and cautious view of existing conditions would be indicated, remembering Pope's admonition "Be not the first by which the new is tried, nor yet the last to lay the old aside." Change is not necessarily progress.

There are no short cuts to culture. The skills and techniques of teaching which have characterized famous medical teachers in past generations were scarcely learned from "workshops" or even from books, but they were acquired over fairly long periods of apprenticeship under older professors by individuals with genuine interest in acquiring and imparting knowledge.

#### Inner qualities

In any workshop or training course of short duration can one acquire the qualities of mind and spirit which characterize the good teacher and researcher? In such courses it is easiest to follow the current tendency in education which deals heavily with the tangible mechanical aspects of instruction, with the greatest emphasis perhaps on visual aids, which loom large in current methods of teaching from kindergarten through college. Visual aids are commonly looked upon as new developments.

Anatomists have pioneered in this field, as models of livers and viscera from ancient Babylon and Egypt might attest. All the anatomical courses constantly employ visual aids, for what else are the specimens, the microscopic sections, the sculptured models and the charts which fill the anatomical laboratories and museums? It would not be surprising to find that the current movement toward visual aids was inspired by anatomy. For superiority in this direction anatomists are indebted to the field of medical illustration which had such honorable beginnings at the hands of men like Jan Stephan Kalcar, illustrator of Vesalius' work and Leonardo da Vinci, and which still has its base in anatomy. Art and anatomy have lived symbiotically over the years to the mutual advantage of each. In the questionnaire of the Institute at least one anatomist admitted being attracted to the field through interest in art.

To the dissector the cadaver is not only the best of *visual aids*, it is at the same time a *tactile* and *proprioceptive aid*. Many of the associative memories of the physician and surgeon are facilitated by the touch of his finger tips and the very movements of his exploring hands. With such wealth of visual aids available to the anatomist there has been little complaint except that many are often tempted to substitute at a real loss inadequately devised synthetic aids for the original material!

To the new recruit in the field let it be said also that there is room and needs for those with interest in both the enjoyment and production of literature. The training of the anatomist should include appreciation of the importance of words and speech. Much of the new language of medicine which the student must learn comes to his attention in the

anatomy courses, and the very essence of scientific truth and accuracy is in it. This is no minor point, for with the increasing use of visual aids instead of lectures or discussions, and of the objective type examinations instead of essays, a student may yet go through school with nods of his head, and check marks of an electrographic pencil as his only way of communicating to the teacher that he possesses knowledge. The anatomist as much as any one should realize and enjoy the power of speech, knowing as he does that words, those worthless priceless symbols of thought, are produced by man's voice and hands with the aid of wonderfully intimate and intricate neurological connections. For the anatomist with an anthropological twist sees man's hand and its freedom from use in progression as either the source or the earliest companion of his power of communication. And surely all the artefacts of civilization from the crude flint chip to the nuclear reactor are directly dependent upon man's hand and mind which provide his capacity for speech, that he stores on mud bricks and stones, papyrus, books and microfilm for all to read though they be remote in space and time.

If these and other advantages of anatomy as a profession come to the attention of thoughtful students there should be no shortage as that which exists at present in the field.

#### **Encouragement of students**

It behooves us, as we have the opportunity, to aid in the recruitment and training of anatomists, who are the first in the line if not the most important of medical teachers. The type of help from different groups will vary. As professors we may in conversation, and, I trust by example,

encourage those students with a flair for teaching and research and a love for youth, to enter and remain in the field of anatomy. As deans and administrative officers you may have similar opportunities in counselling young people about their future careers; and as manipulators of budgets your opportunity to provide adequate resources for them is real. Directors and consultants to foundations may have the opportunity to increase the number of recruits and improve the character of their training through specific fellowships and grants for research.

From the clinician guiding young M.D.s through the years of Board qualifications some encouragement to use the privilege of crediting a year in basic sciences would be valuable. The loss of few aspiring surgeons who might remain in one of them, say anatomy, instead of going on to practice would no doubt have its compensation to the clinical world in the improved teaching of those to follow.

As we go about this pleasant missionary effort our confidence in its value may be increased if we keep in mind that the history of the world, it is said, can be written in the history of its teachers.

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#### **La carrera de un Anatomista.**

Ya que la Anatomía es la disciplina que introduce al neófito a los misterios de la Medicina, se podría esperar que los departamentos universitarios de Anatomía escogiesen su personal entre las filas de los estudiantes de Medicina. Sin embargo, sólo el 30% de los profesores de Anatomía tienen el título de M.D. Una de las razones principales que ex-

plican este fenómeno es que la mayoría de los estudiantes de Medicina aspiran a practicar ésta, y ello no es posible en el campo de la Anatomía. Muchos profesores de Anatomía son en realidad doctores en otros ramos de la ciencia, y aunque los estudiantes de Biología y Química que tienen el doctorado y piensan dedicarse a la enseñanza prefieren por lo general su propio campo, en los últimos años, el número de estos doctores dedicados a la Anatomía ha aumentado de 30 a 136.

El futuro que un Departamento de Anatomía puede ofrecer a un joven es ciertamente, en lo que se refiere a ventajas materiales, considerablemente menos brillante que en otros campos, sobre todo en comparación con el de la Medicina. Por lo tanto, para atraer a un graduado al Departamento de Anatomía, se ha de tener disponible para él una beca o un puesto de instructor con buen salario. La Anatomía, a pesar de dichas desventajas, ha sabido atraer estudiantes graduados tanto de Medicina como de Ciencias (especialmente de Biología), pero de los casi 100 miembros de la "American Association of Anatomists" sólo 50% ocupan puestos en los Departamentos de Anatomía; el 15% enseñan en los Departamentos de Biología; el 10% se dedican solamente a la investigación; el 5% enseñan en otros Departamentos preclínicos; el 8% en el campo clínico, el 7% en campos varios, y el 1% ocupan posiciones de decano o presidente de Universidad.

Una de las mayores atracciones que ofrecen los Departamentos de Anatomía es la facilidad con que sus miembros pueden dedicarse a la investigación científica, y que las áreas de exploración son para ellos prácticamente ilimi-

tadas: recientemente, los anatomistas han contribuido con valiosas aportaciones al estudio de la Endocrinología y de las vitaminas; ellos crearon las bases para los estudios de Hematología, Neuro-Anatomía y Neuro-Fisiología; la Embriología (tanto la clásica como la experimental) debe también mucho a la Anatomía, etc. Para el anatomista, por otra parte, la enseñanza misma puede ofrecer numerosos atractivos, entre los que quizás el mayor sea la posibilidad de ser el primer guía del estudiante de Medicina, quien le inicia en los secretos de la ciencia y le hace ver la historia de su desarrollo desde los tiempos de Vesalio. Se ha discutido la necesidad de crear cursillos de entrenamiento (*workshops*) para los anatomistas nuevos con el fin de mejorar la cualidad de la enseñanza. Mas por mucha utilidad que tales cursillos pudiesen tener, sería dudoso que allí se adquiriesen esas virtudes que caracterizaron a los grandes maestros del pasado, y, en cambio, fácilmente se podría caer en lo que constituye una tendencia actual de la Educación, es decir, el dar primordial atención a los aspectos puramente mecánicos de la instrucción.

Para ayudar a superar la escasez de profesores e investigadores en el terreno de la Anatomía, los profesores podrían incitar a que se dedicasen a dicha ciencia esos estudiantes en que se descubren talento y gusto para la enseñanza e investigación y amor a la juventud.

\* \* \*

Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

# Teaching Psychoanalytic Psychiatry to Medical Residents

SAMUEL SILVERMAN

RECENTLY THERE has been an increase in programs of instruction in psychiatry for medical house officers. Most instruction of this kind has tended to concentrate on the dynamic rather than the purely descriptive aspects of psychiatry with special emphasis on psychoanalytic concepts. Because of this, a basic problem has arisen in such teaching. This is the emotional resistance which such subject matter commonly evokes. Differing opinions have been advanced on how to explain and handle this problem. One point of view holds that because of this resistance, teaching routines for medical house officers can be established only with great difficulty and not too optimistic expectation of success.<sup>1, 2</sup> Classifying this resistance into types and enabling the individual to recognize and understand his resistance has been considered important in the teaching methodology.<sup>1</sup> Another point of view maintains that the problems in teaching dynamic psychiatry to resident physicians in medicine differ very little from those encountered in such teaching for resident physicians in psychiatry.<sup>3</sup>

In this paper, the problems of teaching psychoanalytically oriented psychiatry to medical residents will be re-examined with particular ref-

erence to the role of emotional resistance and its management. This discussion is based on observations made over a five-year period in the course of developing a new psychiatric teaching program for medical residents at the Cushing and Boston Veterans Administration Hospitals. Each year an essentially new group of residents participated. During the entire period there was one instructor available to do the teaching.

## General aspects of resistance

In writing about resistance to psychoanalysis Freud<sup>4</sup> emphasized that the most powerful ones are emotionally rather than intellectually determined. He also pointed out that the subject matter of psychoanalytic theory stirs up strong emotional forces in "men of every kind and not upon scientists alone." This emotionally determined resistance is activated in any student during the early phases of exposure to psychoanalytic concepts and medical residents are not unusual in this respect. In any case, to say that the special problems of teaching psychiatry to medical residents (as compared with others, e.g., medical students or psychiatric residents) are created by the presence of resistance is an oversimplification. Another factor has to be considered. The medical resident's focus of interest is, understandably, different from that of others, e.g.,

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psychiatric residents being taught psychiatry. The medical resident's training has been and is still largely directed toward observing and understanding physical rather than psychological phenomena. He works in an atmosphere where the great majority of lectures, conferences, and discussions are concerned with these physical phenomena. Therefore, although interest in psychological phenomena is individually determined and will vary from resident to resident, the circumstantial pressures of their work will tend to relegate this interest to a secondary position in all the medical residents. This reality should not be confused with emotional resistance.

However, emotionally determined resistance in medical house officers cannot be disregarded or minimized, as it does tend to block understanding of the psychiatric material taught. It will vary in its manifestations and intensity from individual to individual. These variations in medical residents, just as in others, are of course related to each individual's particular personality structure and state of emotional equilibrium which provide the basic endogenous source from which the resistance is derived. In my opinion, dealing directly with these endogenous factors in the teaching process is both highly impractical and undesirable, for reasons further elaborated below. Moreover, external factors related to the teaching process itself may play an important role in determining the intensity and to some extent the kind of resistance which may develop. Such external factors are (1) the particular ways in which the resistance is dealt with, especially the transference elements, (2) the scope of the psychiatric material taught, and (3) the particular methods employed in the teaching.

An understanding of these factors can throw more light on how to reduce the resistance that is present and thus influence the teaching process favorably.

#### Transference aspects

Any pupil-teacher relationship will tend to develop transference elements in it if maintained with any regularity over a period of time. That is to say, both pupil and teacher may "transfer" past attitudes to the present. The pupil may to a certain extent see the teacher as a figure other than he realistically is. A basis for this lies in the pupil's persisting emotional attachments and reactions to figures important in his past life which he has now transferred in some degree onto the teacher without being aware of this. The teacher may also react in a similar way. Transference reactions in the pupil may become an important source of emotional resistance. If, for example, the pupil has developed a strongly negative or hostile transference toward the teacher, then no matter how skillful or logical the teacher may be in his presentation of subject-matter, the pupil will be emotionally resistant toward learning it. On the other hand, if the instructor has similarly a negative reaction to his pupil, he may act in ways which re-enforce the pupil's resistance.

Because such reactions may develop in any teaching situation, they are, of course, not unique to the one under present discussion. However, what has to be further considered here is that the transference elements in medical house officers may be accentuated because the teacher is a psychiatrist and because he is teaching a subject-matter which stirs up strong emotional forces. Nevertheless, the psychiatrist who is

trained to recognize and understand transference components is in a particularly good position to make use of his knowledge to deal with this form of resistance.

### **Management of resistance**

In my opinion, the emotional resistances and particularly the transference elements in them should not be dealt with by "analyzing" them. After all, the medical residents do not come to the teaching conferences to be treated, either individually or in a group. It is, therefore, necessary to avoid transforming the teaching situation into a treatment situation in this sense. The usual result of such an approach is to stir up defensive and hostile reactions on the part of the house officers. Some residents, of course, may have emotional problems severe enough to interfere seriously with their work and assimilation of knowledge in general. In such cases, if therapy is indicated it obviously would not be for the sake of removing resistance to psychiatric instruction but rather because of the presence of illness. It is likewise obvious that in such cases therapy would not be done as part of the psychiatric teaching but completely apart from it.

The problem of managing the resistance can be approached in a far better way, i.e., by developing and maintaining a feeling of confidence in the medical house officers toward the psychiatric instructor. It is well known that teaching, in general, proceeds most successfully when such confidence can be kept at a high level. All teachers have their own methods for achieving this end. I have described hereunder some practices I have found particularly effective.

At the hospital the visits of the psychiatrist are listed on the medical

service schedule without special designation, simply by name, as are the visits of the others attending. Separate conferences are held on each medical ward with the particular group of residents working on that ward, three in number. The small groups make for better liaison, freer discussion, and greater degree of participation in the work of the conference. In turn, this favors the development of confidence in the instructor much more readily than would be possible in a large group. In effect the psychiatrist comes as a medical colleague and not, so to speak, as a specialist. During the conferences as cases are presented, the psychiatrist shows interest in the medical aspects and will at times ask the residents for some information in these areas. This tends to establish a kind of reciprocal exchange of information between colleagues. In addition it helps demonstrate that the psychiatrist is not neglecting the physical aspects of the case while he makes the all-important point that the patient is not just a machine but a person also. In other words he is not falling into the same error—a one-sided approach to the patient—against which he may be cautioning his medical house officers.

There is a further matter to be considered in regard to the development of confidence. The medical residents will often bring up the pressure of work as a reason why they cannot take the time to go into the psychological aspects of a case. While this may be used in the service of resistance, nevertheless the reality is that such pressure does exist. It is not only physical. What the medical residents may not be aware of is that this pressure derives also from the almost constant demands made on them by their patients and patients' relatives for emotional support

and reassurance. This in turn can create a certain need in these doctors themselves for a dependent relationship on someone—but without impairing their self-esteem.<sup>5</sup> This need may be filled by the understanding and giving attitude of the psychiatric instructor. The "giving" may be in the form of a sympathetic interest in some current difficulty connected with the work, or in the expediting of a psychiatric consultation request, or in the form of immediate practical advice about handling the emotional factors in a given problem case, etc.

Development of confidence in the instructor, while important, is not, of course, the only proper means for managing resistance. While it has been stated that the residents should not be "analyzed," that does not mean that their doubts, misconceptions, contrary opinions or anxieties as they make their appearance during the teaching conferences are to be ignored or passively received. A certain number of these doubts turn out to be based on simple misinformation or just lack of knowledge. These can be dealt with by supplying the necessary information. Minor anxieties evoked by the material under discussion can be handled in a limited way by recognizing their existence, directly discussing the extent to which they might be reality-based, and by offering suggestions by which the anxieties could be relieved.<sup>6</sup>

Transference reactions, as discussed earlier, may occur in the psychiatric instructor. More properly they are designated counter-transference reactions. Especially strong resistances in a medical resident may evoke them. There are specific signals<sup>6</sup> which indicate that the instructor is anxiously or defensively involved with the resident. He may have an unreasoning dislike for the

student, dreads or is uncomfortable during the teaching conferences with the particular student, is preoccupied with thoughts of the student to an unusual degree between conferences, finds it difficult to concentrate on what the student is saying, gets into arguments with him, and is defensive or exhibits unusual sensitivity to his criticisms. Countertransference reactions will only add to and deepen the student's resistance if they remain outside the awareness and understanding of the instructor. Psychiatrists, to the extent that they have themselves been successfully analyzed, may then be in a more favorable position to become aware of and control their countertransference reactions and thus in turn favor the progress of the teaching situation.

#### Scope of material taught

Another general factor that may be drawn into the service of the resistance is the scope of the psychiatric material taught, particularly the psychoanalytic content. Basic principles and essential facts should in no way be disguised or modified. On the other hand how much information should be introduced at a time and also in the course of the teaching program and in what form needs careful consideration. After all, the reality is that the medical resident by virtue of his particular training and experience, and primary interest in internal medicine cannot easily understand or assimilate psychoanalytic concepts. A "no compromise" attitude concerning what should be taught that disregards this reality will inevitably lead to lack of comprehension, inability to apply the material presented, and confusion on the part of the house officers. In turn this may lead to an increase in resistance. The

scope of material covered may vary considerably in different teaching programs. However, the basic issue would seem to be whether the material presented has pertinent and practical application to the house officer's work and interest—the treatment of physical symptoms and illness. Another aspect that has to be taken into consideration is that any sizeable group of residents will have a varying interest in and capacity to apply the psychoanalytic material taught. The scope of this material should then preferably be broad enough to be of interest and practical use to the majority, i.e., neither too diluted, nor too concentrated.

In the training program at the hospital, the descriptive aspects of the psychoses and neuroses are covered in the beginning of the course quite briefly but always from the standpoint of the realistic usefulness of this knowledge for the internist. Such practical aspects might be, for instance, the recognition of underlying serious mental states especially when the presenting symptoms are chiefly physical; or a familiarity with the range of treatment possible for such conditions and how such treatment might be arranged for the patient, etc. Most of the teaching, however, deals with the basic psychoanalytic concepts *as they might be applied in a meaningful and practical way by the internist*. Such instances might be the many and varied aspects of the doctor-patient relationship in both hospital and private practice of internal medicine, the significance of organ-language in revealing the nature of emotional disturbances present in patients with incapacitating physical symptoms, the secondary gain aspects of illness, etc. The goal is, in this way, to broaden the medical resident's awareness and understanding of instinctual develop-

ment, the unconscious, repression, the structure of the mental apparatus, symptom-formation, etc., while giving him ways of applying this knowledge that are not beyond his capacities. These concepts were not covered in any particularly systematic fashion. Rather, as will be discussed more fully under methods of teaching, each conference was developed around a case presentation and demonstration which then provided a reference point for discussion. This discussion dealt both with clinical points specific for the case under consideration and also with related but more generalized principles.<sup>7</sup>

#### Specific teaching methods

The specific methods employed in the teaching process are another set of factors which may either increase the resistance or help to lessen it. Most medical residents will have far greater occasion to utilize psychoanalytic principles rather than specific details in their practical everyday work with patients. Experience indicates that a small number of basic concepts repeatedly demonstrated clinically can be assimilated with much less resistance than the covering of a lot of detailed information, particularly in lectures. Technical jargon of course should be avoided as far as possible in the teaching, substituting simple though accurate words and expressions.<sup>8</sup> However, the instructor, while pointing out to his students that the patient is not just a body, but a person, should avoid the error of presenting this person as a conglomeration of words. This may be drawn into the service of the resistance in the form of "it's just a bunch of words—too intangible."

At this hospital all the psychiatric teaching conferences for medical residents are developed around a case

presentation and demonstration. During the first half of the year's work, the patient is interviewed by the psychiatric instructor. During the latter part of the year the residents take turns in interviewing patients other than their own. Any case currently on the ward can be selected, provided of course that the patient is well enough to be interviewed. At first the residents tended to select for conferences only those patients in whom organic disease had been ruled out. They were then encouraged to bring in patients with physical disease, acute or chronic, who presented some problem in ward management, who refused medication or certain investigative procedures, who did not follow diet instruction, or whose symptoms seemed out of proportion to the disease process involved. In this way particular emphasis is placed on the fact that any patient, irrespective of the illness he has, is a human being with emotions that may have some bearing on the cause of his illness or how he is reacting to his illness. There is not always agreement among the residents as to how a patient seems to be reacting to his illness. A number of them complained, for instance, that any patient interviewed before a group, even though it was small, would be anxious and therefore his anxiety could be wholly explained on this basis. The reality core of this was agreed upon in discussion, but the attention and interest of the residents were then drawn to what other sources of anxiety might be present and to how the degree of anxiety and its manifestations vary from patient to patient.

It is often difficult or impossible to give a complete dynamic formulation of a case based on a single conference interview. Although interviews were used to give a first-hand demonstration of what the patient was thinking,

saying and feeling, the instructor set limited goals in the discussion. One or another aspect of the case, as the material allowed, was discussed rather than a complete formulation attempted. Asking the medical residents to accept theoretical psychoanalytic possibilities in a case will frequently lead to skepticism and increased resistance on their part because their lack of knowledge of the field limits the range of their acceptance of such material. The medical house officers will be helped in following psychoanalytic abstractions by more tangible cues. As a matter of fact, since the medical resident has been accustomed and continues to rely a good deal on the use of sensory perception, such sensory cues were noted in each interview and discussed afterward. Attention was called to the patient's gait, posture, bodily movements, facial expression, intonation of voice, vasomotor changes, etc., as they might develop in conjunction with the verbal data during the course of an interview. However, this was not done for purposes of merely description and notation. Rather the possible dynamic meaning was considered and integrated with the rest of the data. For instance, in one interview, a patient with severe headache continually smiled while the content of his associations repetitively dealt with irritation and fault-finding. In another interview a patient with symptom of epigastric distress continually gulped air as he talked about deprivation. Still another patient with persistent tachycardia made many indirect references to fear of his boss. During the interview he almost imperceptibly but continuously moved his chair back so that by the time the interview was over, his chair was much further away from the interviewer than at the beginning. Thus what the medical

house officer saw could be correlated with what he heard, making the latter more meaningful and real to him.

Interviewing done by the residents was not for the purpose of learning specific techniques either of interviewing or psychotherapy. This, in my opinion, is a special problem and in any case should be done in a separate program. It was rather for the purpose of giving each house officer a chance to participate in addition to watching others interview. Under such circumstances it was felt that the broad principles of interviewing which the internist might usefully apply in his work, would assume more meaning than was possible by listening to lectures on the subject. Most residents did much better than they had anticipated in this unaccustomed medium. This led to an increased interest and participation in the discussion that followed. In a similar way, principles of psychotherapy were taken up toward the end of the year. A number of residents volunteered each to follow a patient with physical disease or symptoms for several weeks and bring in for discussion their methods of handling the emotional components involved. This provided a basis for talking over broad principles of when and how an internist might deal with the emotional problems of his patients.

Each year it was noted that a few residents continued to show marked resistance throughout the course of instruction. However, the large majority responded with a continued lessening of resistance. This was manifest in their increased interest and participation in discussions. There was also a demonstrable assimilation of information as evidenced in the type of comments and suggestions involved in understanding and handling the cases presented.

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#### **La enseñanza de la Psiquiatría psicoanalítica a los médicos en el período de práctica en los hospitales.**

Ultimamente se ha notado la tendencia a aumentar la instrucción psiquiátrica para los médicos internos durante el período de práctica en los hospitales, poniendo el énfasis en los aspectos dinámicos más bien que en los descriptivos, y especialmente en los conceptos psicoanalíticos. El problema básico, en esa enseñanza, es la resistencia que esos conceptos suelen provocar, resistencia que, como Freud ha señalado insistentemente, procede de fuente emocional más que intelectual. El grado de esa resistencia (que es grande, por lo general, en cualquier estudiante, en la primera fase de su contacto con el Psicoanálisis) varía según la personalidad de cada individuo. Pero también intervienen en ella algunos factores externos, tales como el modo particular en que esa resistencia es tratada, especialmente en lo que se refiere a los varios elementos de la *transferencia*; el alcance del material psiquiátrico enseñado, y los particulares métodos empleados. En cuanto a la *transferencia*, los elementos de ésta, inherentes en cualquier relación entre maestro y apren-



diz se acentúan cuando el objeto mismo de la enseñanza es susceptible—como sucede en el caso del Psicoanálisis—de engendrar fuertes reacciones emocionales. En el caso de los practicantes en los hospitales hay que añadir, además, una resistencia que no es puramente emocional y que procede de que su trabajo se centra en la observación y entendimiento de fenómenos fisiológicos con exclusión casi completa de los psicológicos. En el presente artículo se revisan todos esos problemas tomándose como base de la discusión las observaciones hechas, en un período de cinco años, en el curso del programa de enseñanza psiquiátrica desarrollado para los practicantes internos en los Hospitales de Veteranos de Cushing y Boston. Las conclusiones de este estudio son las siguientes: La resistencia emocional contra la enseñanza de conceptos psicoanalíticos es un factor real entre los practicantes en los hospitales. Para superarla, esta resistencia no debe ser "analizada" con fines terapéuticos, pues los practicantes no deben ser tratados como pacientes. En cambio es necesario establecer

entre el practicante y el psiquiatra instructor una relación de confianza, lo cual se logra trabajando en grupos de número reducido más bien que en grupos grandes, con grupos de discusión más que por medio de conferencias y con el psiquiatra en papel de colega más bien que en el de "especialista." También ayuda a disminuir dicha resistencia que el psiquiatra advierta y trate de resolver el problema de sus propias reacciones de *contra-transferencia*. Además, el material psiquiátrico enseñado, así como los métodos de enseñanza, han de ser tales que no estimulen esa resistencia y por ello es preferible enseñar principios generales, mas bien que detalles específicos, y sólo esos principios que tengan para el practicante sentido y aplicación práctica. La presentación de casos y la demostración de éstos, y no las conferencias, deben constituir el núcleo alrededor del cual se desarrolla la discusión.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

# The Work of a Department of Surgery in a Postgraduate Medical School

IAN AIRD

THE POSTGRADUATE Medical School of London was originally founded to provide a training ground for consultants in general medicine, general surgery and obstetrics and to assist in the preparation of post-graduates for consultant careers. The school has always felt a particular responsibility for men who are likely to proceed to the staff of teaching hospitals. Centered in Hammersmith Hospital, the clinical departments have been regarded always as university clinical departments, and since the foundation of the school all the hospital beds have been put at the disposal of the medical school for university purposes. The staff of the school is strictly university staff, and the hospital appointments held by members of the staff are honorary. The function of the clinical departments, as of all clinical departments, is three-fold, to cover the requirements of clinical practice, teaching and research. The staff is partly full-time, partly part-time. Both of these types of teacher have their advantages. The full-time university consultant has the advantage of being always on the spot, and of having consequently more time available for teaching conferences, frequent con-

sultation with his colleagues and assistants, and research. The chief value of the part-time member of our university staff, and this is particularly important in a department of surgery, is to bring to the department a high standard of skill in specialized techniques. This is particularly important now that so much of surgery is highly specialized; to cover the whole field, a substantial number of consultants is required. In the more highly specialized compartments of surgery, thoracic surgery, vascular surgery, plastic surgery, orthopedic surgery and neurosurgery, the school requires that the specialties should be taught to its postgraduate students insofar as they require that kind of more highly specialized skill in the conduct of a general surgical practice.

## The postgraduate student body

Postgraduate students are accepted at all levels. A number of students, from a dozen to two dozen, attend from day to day. Most of these are preparing for a higher surgical examination, but some are established surgeons who seek a refresher course in modern methods. This last group presents special requirements, and individual programs are usually arranged for them. The resident and registrar staff of the department are

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regarded as its postgraduate students too, and in this respect, the Ministry of Health has generously recognized that a liberal registrar allowance is desirable. The 180 beds of the department are served by nine house surgeons, all of whom are expected to have passed the primary examination for the Fellowship Diploma, nine registrars and four senior registrars. It is expected that each of these will be occupied only part-time in the care of patients. They are expected to attend the various conferences and teaching sessions, and the registrars and senior registrars engage also in research projects. Additionally, there is a supplementary registrar staff of postgraduates who work on an honorary basis, usually subsidized by scholarships or fellowships.

#### Clinical teaching

Registrars, residents and postgraduate students in small groups attend ward rounds for bedside instruction. Registrars conduct follow-up clinics, and house surgeons are responsible for the records of in-patients, and for taking the histories of new out-patients. They attend the new out-patient sessions, as also do the postgraduate students in small groups.

Special care is taken in the teaching of operative surgery. Most of the registrars, the majority of whom come from the Dominions or abroad, have already served a long apprenticeship before their appointment to us, and have had an extensive experience of assisting at operations. When they first come, they act as first assistant, and in due course perform operations themselves, assisted by a consultant. Finally they have full operative responsibility, and most registrars who have had extensive registrar experience before joining the department, have an opportunity

over a period of two years of performing most of the commoner operations.

Much of the clinical teaching takes the form of conferences. Every Monday morning the staff of the department of surgery, with the registrars, residents and students, meet the members of the Radiotherapeutic Centre of the Medical Research Council, which is situated in the hospital, and discuss the management of problem cases. Patients who are seen at this clinic before their treatment begins, are presented subsequently, and both surgeons and radiotherapists gain some experience of the results that can be obtained each by the other. A surgical-pathological conference on Fridays, gives the same kind of cooperation with the pathologists. A monthly "death" conference is held on all surgical deaths, and an attempt is made to pin the cause of death precisely to details in treatment or lack of it, and errors are analysed with detachment. Each afternoon, from 1:30 to 2 p.m. pathologists demonstrate material from the post mortems held during the morning; staff and students attend.

#### Clinical practice

The hospital functions as a general teaching hospital. There are four general surgical charges, three of them under the care of a whole-time surgeon and one of them directed by a part-time surgeon. There is an orthopedic charge of about forty beds, the accommodation for this specialty being larger than that afforded for most others, for many of the postgraduate students are likely when they leave this country to be responsible for a certain amount of orthopedic and for a good deal of traumatic surgery in addition to their

general work. Eight of the beds are devoted to thoracic surgery, and most of these to the advancement of modern techniques in cardiac surgery, for the hospital benefits from a very close association between cardiologists and thoracic surgeons. A visiting consultant attends once a week for the management of the peripheral vascular clinic and its four associated beds. There are four beds also for neurosurgery, and a neurosurgeon attends also once a week, and for the supervision of neurosurgical emergencies. The neurosurgical beds are used mainly for diagnostic work, most of the more elaborate intracranial operations being performed elsewhere, the neurosurgeon usually transferring them to his specialized hospital when the diagnosis has been made. This allows for general surgical postgraduate students to be instructed in the elements of diagnosis of intracranial disease, and the principles of neurosurgical technique. They pay periodic visits also for clinical demonstrations at the neurosurgical hospital. There is a small ear, nose and throat charge. The plastic surgeon attends once a month when he holds a clinic, and does one operating list. Most of the more elaborate plastic procedures too, are done after transference of the patient who requires them to the plastic center. The day to day plastic surgery is done by the general surgeons, and usually one of the registrars is seconded at the beginning of his period of training to the plastic center for a short practical course in those routine simpler plastic techniques which are required in the treatment of general surgical cases.

Each of the general surgeons in charge of wards has a clinical hobby. In one of the charges, an interest in endocrine surgery is combined with an interest in disease of the pancreas.

Another surgeon has made a special study of esophageal conditions. A third superintends the work of a small urological unit, and the fourth does the rectal work, combining it with an interest in accessible cancers, such as those of the mouth and skin. The clinical staff agrees that if any one surgeon is to have an extensive personal experience of such a disease as cancer of the esophagus or cancer of the rectum, he really requires to cover all the work in that field which is available in the whole hospital. This requires a generosity of outlook which has been very highly developed. When a consultant is asked to see or to treat a condition which he knows to be the main interest of one of his colleagues, he has no hesitation in saying quite frankly to a doctor outside the hospital, or to a medical colleague inside it, that he sends all his work in that field to a colleague who has a special interest in it. When the generosity is reciprocal, as it is here, both patients and staff benefit.

#### **Teaching methods**

The basis of all clinical teaching is of course instruction at the bedside, and a greater part of the student's time is employed there. In a postgraduate hospital students spend proportionately a much greater amount of their time in the operating theatre than it is customary, or indeed proper, for undergraduate students to do. Since at any given moment three different teaching occasions are available—either an operating session, an outpatient session or a ward visit or clinical lecture—students may choose for themselves which particular type of instruction is most suited to their needs, and they are encouraged to follow only very loosely the specific

programme to which they are allotted, and also to spend at least a proportion of their time in library and pathological museum, engaged in private study.

The day usually opens with a demonstration of surgical anatomy or of operative surgery on the cadaver. Cadaveric material is always available in fair supply, but most postgraduate teachers of surgery hope that at sometime in the near future it will be recognized that the postgraduate student is much more likely to benefit from a detailed anatomical dissection of the whole body than is the undergraduate student. It always seems remarkable to us that an undergraduate student is expected to dissect the whole body in his first two medical years, while the postgraduate medical student in surgery, five or six years later, can rarely find an opportunity to do this, when detailed three dimensional anatomy is almost a necessity for him. A strong case could be made in the interest of surgical work in this country for a reallocation of cadaveric subjects, to allow every postgraduate apprentice in surgery an opportunity of dissecting the whole body.

The systematic lecture is perhaps afforded more importance in this school than in most undergraduate schools. It is our belief that a systematic lecture can be at least for the postgraduate an inspiring method of instruction, especially if ample opportunity is afforded the students for questioning.

An attempt has been made always to arrange on one particular day of the week, Friday, a special programme of conferences and lectures which is likely to be of some value to a visitor who can only attend for a day occasionally. At 9 a.m. we start with a staff round, problem cases being presented to the whole staff

of the department. This is followed at ten o'clock by a clinical lecture, and then at 11:15 by the clinico-pathological conference. In its classical Harvard form the clinico-pathological conference is concerned with the complete study of a case. The department of medicine at Hammsmith follows this tradition and a patient is considered in detail from the beginning of his illness so far as it is known, to full post mortem analysis. This has not been found to be convenient in surgery, and instead, we take each week some subject, which is illustrated by three or four recent examples in the practice of the department, examples being chosen to contrast in some degree with each other. The clinical and operative findings are correlated with the pathological appearances. Then at 1:30 we adjourn to the pathology department for the autopsy demonstration, and at 2 p.m. proceed again to the lecture theatre when a visiting surgeon appears as a guest to give an account of work on which he is engaged. These Friday sessions cannot be attended by the full staff, for clinics and operations must go on on this day also but it does provide a convenient day each week which visitors to London can be invited to attend.

The teaching of teachers is always a difficult matter. The presentation of cases at staff round or clinico-pathological conference gives the senior staff an opportunity to form some opinion of the style, diction, personality and audibility of the junior members of staff and sometimes advice can be given about these matters. On two occasions the school has run a conference course on medical education and it is possible that in the future practical courses in teaching may be introduced.

## **Research**

As members of a university department, all members of staff are expected to engage in research and to contribute to the knowledge of their subject. To function effectively as a research organization, a department of course requires expensive apparatus and technical staff. Two of the lecturers fill pure research posts, one in experimental surgery and one in surgical physiology and these two men are responsible for a great part of the training of their juniors in research methods. The clinical laboratories of the department are supervised by a deputy director who superintends the use of apparatus and the work of technicians. There are seven technicians, one specializing in electronics, another in biochemistry, a third in the requirements of animal experiments and the others being employed on general duties. Nine laboratories are arranged in two suites to accommodate the members of the staff in the laboratory work associated with their clinical research. In general, the research problems undertaken by the department are carried out by teams, and to these teams the junior members of the staff are seconded as research assistants. The subjects covered include the physiology and clinical application of the extracorporeal circulation, the physiological effects of freezing, the relation of blood groups in disease, the measurement of the cardiac output by radioactive methods, examination of hepatic and renal function, the behaviour of the cardiac output and peripheral circulation under anaesthesia and at operation, the genesis and natural history of goitre as measured by radioactive iodine methods, and the employment of radioactive zinc in the study of pros-

tatic metabolism. Junior members of staff have thus a fairly wide range of choice of subjects. In addition, there is the same continuous application to clinical fields of study which are undertaken in the surgical charges of most teaching hospitals. The fields of special interest include the diseases of the oesophagus, biliary passages, pancreas and heart.

Every modern department of surgery should of course have an experimental section, but this has not yet been made available to us. Our experimental work is undertaken partly at the Royal College of Surgeons' farm at Downe and partly at the Royal Veterinary College. We are indebted to the Council of the Royal College of Surgeons and to the Dean and Faculty of the Royal College of Veterinary Science for facilities in these places. It is not easy however to undertake day to day experimental work in parallel with clinical problems if one's experimental laboratories are at a distance. Nevertheless, a full experimental trial of machinery for furnishing extracorporeal circulation has been undertaken, and a long experimental investigation of the behaviour of transplanted organs.

On a lower plane, junior members of staff are encouraged to find in the clinical work of the department some material for a contribution to surgical literature in the way of a series of cases, or even a careful study of a single unusual surgical phenomenon. Every attempt is made to teach registrars how to recognise those clinical events which should be recorded, and they have instruction in the technique of writing scientific papers.

A postgraduate department of surgery of this kind of course requires very extensive ancillary services in routine pathology, radiology and so on. These have always been readily



available. One could mention too the requirements of such a department in the way of workshops, facilities, advice on electronic and physical problems, illustration and assistance with radio-isotope methods, but perhaps this short account will indicate the general lines on which the department is conducted.

### **El Trabajo del Departamento de Cirujía en la "Postgraduate Medical School" de Londres.**

En la *Postgraduate Medical School* de Londres, los departamentos clínicos han sido siempre considerados como departamentos universitarios: todas las camas del Hospital estuvieron siempre a la disposición de la Escuela de Medicina y el personal médico es estrictamente personal universitario. Los departamentos clínicos tienen tres funciones: la práctica clínica; la enseñanza y la investigación. Se admiten graduados de las Escuelas de Medicina de todos los niveles; los que se preparan para pasar exámenes especiales de Cirujía (éstos asisten a la instrucción todos los días) tanto como cirujanos ya establecidos que buscan conocimientos en las técnicas modernas (para ellos se arreglan cursillos especiales). Las 180 camas del Departamento son atendidas por 9 cirujanos residentes y 13 no residentes que pertenecen al personal médico del Hospital.

**La enseñanza clínica.**—Los médicos residentes, no residentes y graduados (en grupos pequeños) hacen juntos las visitas de rutina. Los cirujanos residentes están encargados de mantener al día los historiales de los pacientes externos e internos. Un cuidado especial se concede a la enseñanza de la cirugía operativa. La mayoría de los no residentes proceden de los Dominios Británicos o del Extranjero, y generalmente tienen ya un largo aprendizaje y experiencia. Al principio, actúan como primeros asistentes; después de algún tiempo se les permite hacer operaciones bajo

supervisión, y finalmente asuman ellos toda la responsabilidad. Gran parte de la enseñanza clínica toma la forma de seminarios (*conferences*), en que participan los graduados, médicos no residentes y cirujanos residentes y en los que cooperan a veces miembros de otros Departamentos de la Escuela. Cada mes se discuten en una reunión especial todos los casos de fallecimientos acaecidos durante ese período en el Departamento de Cirujía, y se analizan libremente los errores cometidos.

**Práctica clínica.**—Hay en el Hospital cuatro secciones de Cirugía general; una sección ortopédica (40 camas); otra de cirugía cardíaca (en que hay oportunidad de familiarizarse con las técnicas quirúrgicas más modernas), y otra de neuro-cirugía (que sirve más bien para fines diagnósticos, ya que las complicadas operaciones intracraneales se llevan a cabo en hospitales especializados). También se da instrucción en la cirugía plástica. **Métodos de enseñanza.**—La base de toda la enseñanza clínica es, desde luego, la instrucción junto a la cama del paciente, lo cual, unido a la práctica en la sala de operaciones, ocupa la mayor parte del tiempo de los estudiantes. En cada momento, el graduado puede escoger entre tres tipos de instrucción: una sesión en la sala de operaciones; una sesión con pacientes externos, o una visita a los internos junto con una conferencia clínica. Se ha hecho un esfuerzo para poder ofrecer, un determinado día de la semana, un programa especial de conferencias y discusión para aquellos que sólo pueden asistir una vez por semana. La Escuela ha tenido también, en dos ocasiones, un curso sobre educación médica. **Investigación.**—Se espera que todos los miembros del personal médico lleven a cabo alguna investigación científica. Dos miembros del personal se dedican exclusivamente a la investigación (en cirugía experimental y fisiología quirúrgica) y al adiestramiento de los graduados en los métodos de investigación. La Escuela dispone de 9 laboratorios con el necesario personal técnico.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.



# The Undergraduate Teaching of Ophthalmology

**T**HE PURPOSE of this paper is to present my ideas on the undergraduate teaching of ophthalmology and the proper organization of an undergraduate course. The many problems incident to these subjects have been of major concern to me over the 36 years I have taught medical students, from the time I returned to Johns Hopkins in 1919 after the close of World War I, up to the time of my retirement on July 1, 1955. In this period I have organized and reorganized various courses of instruction, have written and rewritten countless lectures, and have endlessly quizzed students at examination for the main purpose of ascertaining how successful I had been in imparting information to them, how much had been absorbed and how much had gone over their heads. These students were, almost without exception, highly intelligent, interested and anxious to learn. When I found them ignorant of what I had thought had been carefully and well explained, and analyzed the causes of their ignorance, I found it was almost invariably my fault. It was usually the old story of crowding too much in a lecture, giving it too fast and in an

ALAN C. WOODS

uninteresting manner! I must freely confess that I do not yet know all the answers to the various problems of undergraduate pedagogy. All I can do is to relate what I have learned by experience, by small successes, and by many failures.

## 40 years ago

In the beginning, let me start with the premise that 40 years ago, as a general rule, the undergraduate training in ophthalmology was a pretty disorganized, happy-go-lucky affair. Any exceptions to this rule were due to the brilliance and magnetic personalities of a few individuals genuinely interested in teaching. The conventional pattern then in vogue, and unfortunately still followed in some schools, was an uninspired series of lectures on the physiology of the eye and on methods of examination; much dreary instruction in refraction, muscle anomalies and strabismus; and routine discussions of diseases of the lids, lacrymal apparatus, the conjunctiva, the cornea, the sclera, the uveal tract, the retina and the optic nerve. The pathogenesis of these diseases was then the concern of the bacteriologist, the pathologist and the internist—not of the ophthalmologist. The

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fault in this sort of teaching lay not as much in the instructor as in the tendency to regard the eye as an isolated organ, with its own private set of specific diseases. The teachers of those days made a futile effort to cover in some manner the whole subject of ophthalmology as presented in the small popular textbooks. The clinical instruction in the out-patient departments was almost equally poor. The attending ophthalmologists were all busy practitioners, and their chief anxiety appeared to be to get the clinic finished up and get back to their practices or to their amusements. There was not much time for the instruction of the student. He hung around, picked up any pearls of wisdom that fell his way, and then went home!

#### Planning a modern course

In planning a modern course in ophthalmology for undergraduate medical students there are a few cardinal points which must be constantly kept in mind. The medical student usually begins the study of ophthalmology in the third year when he is suddenly deluged with a plethora of clinical instruction in physical diagnosis, medicine, surgery, psychiatry, and the various medical and surgical specialties. No matter how brilliant the individual student may be, there is a definite limit to the amount of information he can absorb. The competition for his attention is intense, as each instructor in all the various branches of medicine is on his mettle to capture the interest and the imagination of the student. The successful teacher of ophthalmology is therefore the one who can stimulate and hold the interest of his pupil in his specialty. If he is more successful in this than are his colleagues in the sister spe-

cialties, there is always the excellent chance that he may guide the best brains of the class into ophthalmology! Therefore the first point to be remembered in formulating our undergraduate instruction is that the student should be fed no more than he can readily assimilate, and that this material be served up to him in the most appetizing and appealing manner. The second cardinal point to be remembered is that barely one per cent of the class will ultimately become ophthalmologists and that an undergraduate course is not the place to teach the special disciplines of a specialty. The medical student should therefore receive instruction only in those phases of ophthalmology which will be of actual use to him in the later practice of his profession as an internist, a surgeon or a specialist in some other field.

#### Pertinent questions

In designing the course in undergraduate ophthalmology, there are, therefore, several pertinent questions to be considered. These are:—What are the particular phases of ophthalmology which should be covered in this course? In what manner should instruction in these subjects be imparted to the student? In what sequence should it be presented?

The phases of ophthalmology which I believe will be of greatest value to the average physician in his practice, and which I believe should be the major subjects for undergraduate instruction, can be grouped under five general headings. These are:

- A. The reaction of the eye to acute exogenous infection and insult.
- B. The common intrinsic ocular diseases—cataract, glaucoma and the degenerations.
- C. The reaction of the eye to metabolic disorders and systemic diseases.

D. The reaction of the eye to systemic infections and hypersensitivity.

E. Neuro-ophthalmology.

My reasons for this selection may be summarized as follows: A. Every physician may be confronted at any time with the problem of the acutely inflamed or injured eye. An exact differential diagnosis is unnecessary—it is enough that the physician differentiate trivial inflammations and injuries from the serious ones, be able to prescribe first aid and be wise enough to refer the patient to an ophthalmologist when the injury or infection is serious. To this end there should be instruction in the common external diseases and minor injuries, and in the differentiation of these from the deeper, serious inflammations and injuries.

B. Whatever may be the specialty of the physician, if he practices clinical medicine a large number of his patients will develop cataracts, glaucoma and the degenerative ocular diseases. Every practicing physician should have a superficial knowledge of these, be on the lookout for them in his patients, and be able to discuss the general problems they entail.

C. If a physician is to treat the metabolic diseases—thyrotoxicosis, diabetes, the blood dyscrasias, etc., he must have some knowledge of their ocular complications. This is so axiomatic it does not require discussion.

D. The reaction of the eye to systemic infections and hypersensitivity embraces the entire question of endogenous uveitis, and all the ocular manifestations of both granulomatous and nongranulomatous systemic disease.

E. The ocular complications of the more common neurological diseases and of intracranial tumors should be subjects of a short series of lectures. Those lectures can well be supple-

mented by a series of elective clinics in ophthalmic neurology. These clinics are usually so spectacular that they are immensely popular and they can be given outside the regular course with considerable assurance they will be well attended.

In presenting the subjects of the reaction of the eye to systemic disease, metabolic disorders and infection, the fact that the medical student is studying to be a doctor and is not being trained as an ophthalmologist should always be remembered. Therefore, the subject matter should be presented against the background of the systemic disease, and not as a specific disease of ocular tissue. For example, the usual interstitial keratitis of children should be demonstrated as the most frequent and important lesion of congenital syphilis, and not from the viewpoint of the ophthalmologist, i. e.—that congenital syphilis is the most important cause of interstitial keratitis. Similarly, the retinopathies of diabetes, nephritis, arteriosclerosis, and the blood dyscrasias, etc., should be taught as part of the complications of these diseases, their position in the disease complex stressed, their peculiarities emphasized and the diagnostic importance of their ocular symptomatology pointed out. This approach stimulates the student's interest, makes him regard ophthalmology as an integral part of his medical education, and teaches him to use his knowledge of ophthalmology as a diagnostic aid. Moreover, it prompts him to bring his patients with fundus lesions over to the ophthalmology department for discussion of the ophthalmological problems involved.

Just as certain phases of ophthalmology should be stressed, other subjects should be avoided or only lightly touched upon. Chief of these are refraction, muscle anomalies and

ophthalmic surgery. Instruction in errors of refraction can profitably be limited to simple definitions and explanations of hyperopia, myopia, astigmatism, accommodation and presbyopia. All the undergraduate student needs to know about anomalies of the ocular muscles is the difference between paralytic and non-paralytic squint, and the relation of accommodation and hyperopia to the common internal strabismus of children. This material can all readily be covered in the preliminary lecture on physiology, and thereafter dismissed for the balance of the course. If discussed at greater length, one can be assured that the student will lose interest and will promptly forget all he is told! Much the same applies to ophthalmic surgery. Here I believe instruction should be limited to a simple explanation and moving pictures of cataract and glaucoma operations, which should be a part of the lectures on these subjects. If the student becomes intrigued by these movies, he will come to the operating room of his own accord, watch various operations and ask questions. One such voluntary convert is worth a hundred unwilling victims, down whose gagging throats one crams an unwanted and indigestible meal!

Having reached a decision about the general subjects to be covered in the undergraduate course, the teacher must now decide how this material is to be presented to the student—through didactic lectures, through personal clinical instruction with the actual patient as the text, or through a combination of the two methods? The answer to this question depends somewhat on the amount of time available. The number of hours assigned to the required courses in ophthalmology varies within a wide range in different medical schools. The minimum is

about 26 hours and the maximum is occasionally over 100 hours. The average is about 48 hours. Elective courses of almost any extent desired can usually be offered to supplement the required course.

### Clinical vs. didactic

What now are the advantages and disadvantages of didactic and clinical teaching in ophthalmology? Didactic instruction, through planned and organized lectures, allows the available time to be used to the maximum advantage, permits the extensive use of auditory and visual aids, and avoids repetition. The chosen material is covered as desired, and each student receives the same instruction. Didactic teaching has the great disadvantages that the student is divorced from the patient and the teacher loses personal contact with the student. It requires a most gifted teacher and artfully used visual aids to keep straight didactic instruction from becoming monotonous.

The personal instruction of small groups of students, either at the bedside or with the ambulant patient present to serve as a text for the presentation of the subject, is probably the very best type of clinical teaching. It has the great advantage that the student can examine the patient, can see the actual lesions of the disease, can ask questions, and with his instructor, can explore all the ramifications of the disease entity under discussion. Such instruction also has the invaluable asset of close contact of the student to both the patient and the instructor. I believe this form of teaching is the *sine qua non* for the graduate training of an ophthalmologist, and I cannot overstress its value in teaching medical students. But it has great disadvantages if it is the only method

used to teach undergraduates. Primarily, it is difficult or even impossible to regulate the flow of the clinical material to the end that the patient with the proper disease is available at the right time for demonstration. Thus if we are dependent solely on clinical material for the subject matter of our teaching, our course in ophthalmology is liable to wander off into all sorts of strange by-ways, and students in the different sections are likely to get quite different instruction. An orderly course becomes impossible and our teaching efforts wind up in confusion. Further, since the great value of this type of teaching is the contact of patient, student and teacher, and the opportunity it affords the student to examine the patient, it is obviously applicable only to small groups.

#### **A compromise**

It is apparent that both didactic lectures and clinical teaching to small groups have their advantages and their disadvantages. Some compromise between them is necessary. A reasonably satisfactory arrangement is to divide the total allotted time equally between didactic instruction and clinical teaching. Thus, if there are 48 hours available for the required undergraduate courses in ophthalmology, 24 of them can be allocated to didactic lectures, and 24 to group clinical teaching. For several years I attempted to integrate a didactic lecture and clinical teaching into one organized session. To that end there was first a formal lecture with many slides illustrating the lesions of the disease under discussion. At the conclusion of the lecture a number of patients showing the symptomatology just discussed were assembled, an individual instructor assigned to each two or

three of these patients, the class of 75 was divided into small groups, which were supposed to rotate between the demonstrators and thus have an opportunity to see and discuss the actual lesions. This idea seemed sound in theory. Unfortunately, it worked poorly in practice. There was a tendency for a few students to monopolize the patients, while others waited impatiently for their turns. The session became protracted and confused. Reluctantly I abandoned this effort, and since then the clinical teaching has been more satisfactorily covered by assigning the students to the outpatient department in groups of five students to one instructor. New patients are assigned to each student, who takes the history, makes his examination, and, when possible, reaches his diagnosis. When this is done, he takes the patient to the instructor for review and discussion. At the conclusion of the session, each instructor assembles the most interesting patients of the day and holds an impromptu clinic for his own group, in which each student has the opportunity to examine these patients and discuss them with his instructor.

The next major question to be decided before actually formulating the didactic lectures is when the course in ophthalmology should be given, and how it should be fitted into the medical curriculum. This is usually decided by a curriculum committee. However, it is the duty of the professor of ophthalmology to speak up boldly before this committee, to present a logical case, and to demand his proper place in the sun.

In many medical schools a course in diagnostic methods is given towards the end of the second year as an introduction to the clinical teaching. Included in this course should be instruction in ophthalmology. This

instruction should be given to small groups and should be limited to demonstrations of the proper objective examination of the eyes, the determination of visual acuity, the use of the ophthalmoscope, and elementary perimetry. With this preliminary instruction, the student can forthwith begin to examine the eyes of his patients in the various dispensaries and the public wards. Here he will see things he does not understand, but they will awaken his interest in ophthalmology.

#### Actual course

The actual course in ophthalmology should begin in the third year and as early in the year as is possible. Ophthalmology should get away on an even start with the other branches of clinical medicine. The clinical dispensary instruction to small groups should preferably be entirely in the third year, and evenly distributed throughout the three trimesters or the four quarters. Since the clinical instruction of the small groups should not precede the formal instruction, the didactic lectures, which are whole class exercises, should ideally begin in the first quarter or trimester, as the case may be. As many as possible of these lectures, certainly the first 12 and probably the first 16 should be given in the third year. Thus the student will receive the bulk of his instruction in ophthalmology in the third year, and will be able to employ this knowledge in his clinical work on the public wards in his fourth year. When ophthalmology was given almost entirely in the fourth year, I had many students tell me that they wished they had had earlier some intimation of how fascinating it actually was. Had this intimation reached them in the third year, before they had made their

decisions for other services, they might well have applied for ophthalmology internships. They were exposed to ophthalmology too late. Therefore, both because the student needs some knowledge of ocular disease to use during his fourth year ward work, and for the recruitment of future ophthalmologists, it is best to have the major part of the instruction in the third year. The fourth year lectures can best be devoted to advanced ophthalmology, to neuro-ophthalmology and to review.

#### What kind of lectures?

Having reached decisions on the general subjects to be covered, and how and when ophthalmology should be taught, the teacher is now confronted with the task of writing and organizing his didactic lectures. These are the backbone of his course. Exactly what specific subjects shall be discussed, how extensive should the discussions be, and what should be the sequence of the lectures? I confess I do not know the answers to these questions. In the 36 years I have been charged with clinical teaching, I have reorganized the course a dozen times, have changed the content of lectures, and have repeatedly altered the sequence—and I am still uncertain and dissatisfied with the results. All I can do now is to outline the pattern finally used when the time came for me to retire.

If there are 24 required hours available for formal didactic instruction in ophthalmology, I should suggest that approximately eight hours be assigned to instruction in what might be termed "straight" ophthalmology, i.e., the anatomy and physiology of the eye, exogenous infections, injuries and the major intrinsic ocular diseases. The balance of the



## *The Undergraduate Teaching of Ophthalmology*

available time I would devote to instruction in the ocular changes which result from systemic disease, and to neuro-ophthalmology. Were a greater number of hours available for this formal didactic instruction, I would not increase the number assigned to the teaching of "straight ophthalmology," but would devote the additional time almost entirely to medical ophthalmology.

In planning such a course of didactic instruction, I must reluctantly admit that I have found it necessary to give two preliminary lectures on the anatomy and physiology of the eye before beginning the clinical ones. While these subjects have already been covered in the preclinical years, they have not been covered from the standpoint of the clinician, and the material is not fresh in the student's mind. I have tried the experiment of omitting these lectures, only to find that the student is later confused through an ignorance of terminology and basic anatomy and is unaware of the clinical importance of certain physiological principles. However, because these lectures are necessary, they need not be dull. They should be made as interesting as possible, the clinical significance of anatomical points and physiological reactions stressed, and fine details glossed over. Moreover, the lecture on physiology affords a splendid opportunity for disposing of the subjects of errors of refraction and muscular imbalances!

The remaining 22 hours of didactic lectures are distributed over the third and the fourth years. I believe the ideal arrangement is a total of 16 lectures in the third year and eight in the fourth, but I will settle for 12 and 12. After we have assigned the first two hours to anatomy and physiology, what specific subjects shall be discussed under the five gen-

eral headings already decided upon? I should suggest a program somewhat as follows:—

*A. The reaction of the eye to exogenous infection and insult*—Three lectures. Suggested topics are 1. infections, inflammations and common diseases of the lids, lacrymal apparatus and conjunctiva; 2. common diseases and infections of the conjunctiva, cornea, and sclera; 3. injuries and burns of the eye and sympathetic ophthalmia.

*B. The common intrinsic ocular diseases*—Three lectures. One each on cataracts, glaucoma and the degenerations. Movies of a cataract extraction and filtering operations can well be shown with the cataract and glaucoma lectures.

*C. The reaction of the eye to metabolic disorders and systemic diseases*—Four lectures. Suggested topics are: One lecture on exophthalmos, retro-lental fibroplasia, deficiency diseases, etc. A second should be on the ophthalmoscopic diagnosis of vascular sclerosis; the third can be devoted to the ocular changes of diabetes and blood dyscrasias; the fourth can be on retinal diseases and a classification of the optic neuropathies.

*D. The reaction of the eye to systemic infections and hypersensitivity*—Seven lectures. Five of these I would devote to the subject of endogenous uveitis. According to the manner in which the lecture hours are divided between the third and the fourth years, several of these may go over into the fourth year. The first two of the uveitis lectures should be elementary ones on the classification, symptomatology, pathogenesis and general pathology of inflammations first of the anterior uvea, and second inflammations of the posterior uvea. The third lecture can well be devoted to the symptomatology and special pathology of specific forms of

uveitis, while the fourth lecture should be on the subject of the etiologic diagnosis, and the fifth on the specific and nonspecific treatment of uveitis. Ocular syphilis and ocular tuberculosis can well be the subjects of the last two lectures of this group.

*E. Neuro-ophthalmology*—Three lectures. Suggested topics are, 1., the optic neuro-pathways and topographical diagnosis; 2., the optic neuropathies, inflammations and atrophies; 3., the ocular changes produced by intracranial diseases and tumors. As already stated, these formal lectures can profitably be supplemented by a series of elective clinics.

*F. Reviews*—Two sessions. These reviews of fundus lesions can be made both profitable and highly interesting by the simple device of gathering up a number of unselected slides of various fundus lesions. These are shown at random, and a student is asked to describe what he sees as though he were dictating a note for a history. He is then asked his diagnosis. Other members of the class are asked if they agree or can add anything. It becomes an open seminar. When the resources of the class are exhausted, the instructor then describes what he sees and gives his diagnosis. Finally the diagnosis on the slide is read by the operator of the camera. The students enter into this game with enthusiasm and these reviews are by far the most popular exercises of the year. They are especially enjoyable if the instructor plays fair with the class, and goes into the review ignorant of the material to be shown. Nothing delights the class so immensely as the occasional time the teacher is wrong and one of the students has guessed correctly!

Each didactic lecture must be carefully adjusted for architecture, content and time of delivery. The

absolutely perfect lecture has yet to be written. No lecture is ever so good that it cannot be improved upon. The common faults are poor design—putting on the superstructure before the foundations are complete, and putting too much in a single lecture. A lecture is much like a 30-foot boat—if you have one thing you cannot have another. Yet it is amazing how much can be covered if the architecture of the lecture is sound, and extrinsic aids are properly used. The most important of the extrinsic aids are a syllabus of the lecture which should be given to the student, and the illustrative slides. The value of the syllabus is that it largely relieves the student of the necessity of taking notes, and allows him to devote his entire attention to the subject matter and the illustrative slides. The illustrative slides should include the free use of "dummies." These are short, typed headings or summaries. They hold a lecture together, and insure an orderly presentation of the subject. They promote clear thinking, and one cannot have a clear presentation without clear thinking on the part of the teacher.

The sequence in which the lectures are given should be adjusted according to the position of the course of ophthalmology in the general curriculum, and the students' schedule. Thus if the ophthalmology lectures start at the beginning of the third year, when the student is first embarked on the glorious adventure of clinical medicine, I should be greatly tempted to lecture first on the reactions of the eye to the various systemic infections, intoxications, metabolic diseases and hypersensitivity, and to postpone the lectures on exogenous infections and the intrinsic ocular diseases until the end of the course. On the other hand, if the ophthalmology instruction does not

begin until the last quarter of the third year or some time in the fourth year, I should probably follow the more conventional sequence already outlined. There can be no hard-and-fast rule. After the ophthalmologist has been assigned his hours, he should adjust his course in them so it will be of the greatest interest and value to the student.

I have already alluded to the subject of elective courses in ophthalmology. Most of these courses are designed for men who do not contemplate becoming ophthalmologists, but who nevertheless feel the need or have the desire for additional training. To this end additional opportunity for work in the outpatient department and on the hospital wards should be afforded. Within limits, undergraduate students may be admitted to the courses in ocular pathology, advanced physiology, chemistry, etc., which are designed primarily for the graduate house staff. There is, however, one elective in ophthalmology which is peculiarly adapted to undergraduate students, and which is well worth the labor and trouble of giving. This is an elective course in advanced medical ophthalmology. It should follow the required

third year lectures and be open to third and to fourth year students. If there are sufficient hours available in the required course, it can well be incorporated therein, and made an integral part of the instruction in ophthalmology. In these lectures the ocular complications of such diseases as sarcoidosis, Brucellosis, the collagen diseases, toxoplasmosis, syphilis, tuberculosis, or what-you-will, can be explored and the fascinating stories of their development unfolded. New developments in ophthalmology can be taken up and presented while they are still hot and in the formative stages—such subjects as the use of the adrenal cortex steroids, bacterial hypersensitivity, the new concepts in the pathogenesis of diabetic retinopathy, etc. In the 20 years I have offered such an elective, the content of the course has completely changed, not one of the original lectures has survived in anything like its original form! And I prophesy that if someone else continues this course, in another 10 years not one of the present lectures will be represented in the 1965 edition! Such a course has proven highly popular with the students, and is almost as much fun for the professor as it is for them.

### **La enseñanza de la Oftalmología a estudiantes no graduados.**

Hace 40 años, la enseñanza de la Oftalmología a los no graduados carecía, por lo general, de organización, y consistía en una serie de secas conferencias sobre la fisiología del ojo y métodos de examinación de este órgano, seguidas de discusiones rutinarias sobre las enfermedades de sus partes. El estudio de la patogénesis de estas enfermedades se dejaba a los bacteriólogos y patólogos. Al planear un curso moderno de Oftalmología para no graduados, es preciso tener en cuenta algunos puntos cardinales. El estudiante suele empezar el estudio de la Oftalmología en el tercer año, cuando tiene que enfrentarse con una gran abundancia de instrucción clínica (diagnosis, cirugía, psiquiatría, etc.) que divide su aten-

ción, y así, sólo un brillante profesor podría lograr por parte del estudiante el necesario interés y concentración. No se debe, pues, ofrecer de esa materia más de lo que es posible asimilar, y ello ha de hacerse en forma atractiva. En segundo lugar, no hay que olvidar que sólo el 1% de los estudiantes no graduados se ha de especializar finalmente en la Oftalmología, y que, por tanto, un curso de no graduados no es el lugar apropiado para una enseñanza muy especializada: sólo debe ofrecerse lo que ha de ser de utilidad para cualquier médico. Al planear un curso de Oftalmología es necesario preguntarse: ¿Cuáles son las fases particulares de la Oftalmología que deben ser tratadas en el curso? ¿De qué modo se impartirá la instrucción de éstas? ¿Cuál será el orden seguido? Sobre esos puntos hay, naturalmente, diversidad de

opiniones. El autor del presente trabajo, que ha sido Profesor en la Johns Hopkins University de 1919 a 1955, y que, durante este tiempo, ha organizado varios cursos de Oftalmología, presenta el plan siguiente.

Materias de enseñanza más útiles: a) La reacción del ojo a las agudas infecciones exógenas b) las intrínsecas enfermedades oculares comunes; c) la reacción del ojo contra desórdenes metabólicos y enfermedades del sistema; d) la reacción del ojo contra infecciones del sistema y enfermedades hipersensitivas, y, e) neuro-oftalmología. Al presentar estas materias no se debe olvidar nunca que la mayoría de los auditores no serán oftalmólogos. En cuanto al problema de cómo presentar las materias de enseñanza escogidas, si por medio de conferencias o por medio de la instrucción clínica a la vista del paciente, o por una combinación de los dos métodos, la decisión depende, en gran medida, del tiempo disponible, que varía entre un minimum de 26 y un maximum de 100 horas asignadas al curso de Oftalmología. Con la instrucción por medio de conferencias se aprovecha mejor el tiempo, pero este método tiene la desventaja de que el estudiante queda separado del paciente, y que el profesor no establece contacto personal con el estudiante. Además, es mayor el peligro de la monotonía.

La instrucción de pequeños grupos, en presencia del paciente, con una demostración directa de la materia de enseñanza, parece haber sido la forma mejor de enseñanza. Otra solución consiste en dividir las horas de clase disponibles entre conferencias y clínica. Un problema especial es el de ajustar el curso de Oftalmología al *curriculum*. El autor recomienda se comience el curso inmediatamente después de iniciarse el tercer año de estudios; que se termine la instrucción clínica ese año y se distribuyan las conferencias entre el tercero y el cuarto años. Siendo la distribución y organización de las conferencias factores importantes en el planeamiento de un curso moderno, se trata de este punto con gran detalle y se termina con una discusión sobre las ventajas e inconvenientes de cursos optativos de Oftalmología, y con un sumario de las conclusiones derivadas de la experiencia del autor. La conclusión final es la necesidad de reorganizar frecuentemente los cursos de Oftalmología para adaptarlos a las condiciones cambiantes y a los avances realizados.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

## Medicine in the 19th Century

T. CLIFFORD ALLBUTT\*

### Explanatory Notes

ALAN M. CHESNEY

THE reprinting in the Journal of Medical Education of an excerpt from an address given more than a half century ago obviously calls for an explanation to present day readers. I am convinced, however, that they will not feel the need of an apology after they have read what is reprinted further on.

The explanation is simple. The Editorial Board of the Journal has embarked upon a program designed to bring before its readers some of the historical aspects of medical education. It has chosen to do this by planning a series of articles by selected authors setting forth particular developments in the field of medical education, and by reprinting significant papers and addresses dealing with medical education that have appeared during both the recent and the remote past.

Those of us of the older generation

of so-called "medical educators" who have attended many meetings of the Association of American Medical Colleges or many of the Congresses on Medical Education held each February under the auspices of the American Medical Association, have become accustomed to hearing ideas about medical education put forward as brand new discoveries when in reality they had already been proposed or expounded many years before by our medical forefathers and often in far more felicitous phraseology than one encounters today! Perhaps, therefore, those of us whose thoughts "still cling to the mouldering past" may be pardoned if we resurrect from that past some thoughts and ideas which were expressed many years ago but which still retain a freshness in point of view that makes them appropriate candidates for resurrection even in an atomic age.

The address which has been chosen to inaugurate this series of reprints was delivered before The Johns Hopkins University on October 17, 1898. Unhappily the full text cannot be

\*A reprint of a portion of an address delivered before The Johns Hopkins University on October 17, 1898, by T. Clifford Allbutt, M.D., at that time Regius Professor of Physic at Cambridge University, with an explanatory note by Alan M. Chesney, M.D. Dr. Chesney is dean emeritus of the medical faculty and associate professor emeritus of medicine at Johns Hopkins University.

reprinted because it is too long, but anyone whose interest may be aroused to the point where he or she wishes to read it in its entirety will find it in the *Bulletin of the Johns Hopkins Hospital*, Volume 9, December 1898, pages 277 to 285 inclusive.

Thirty years have passed since the author of this address died, and perhaps for that reason a biographical word about him will not be amiss at this point. He was born in Dewsbury in Yorkshire, England on July 20, 1836, and died at Cambridge on February 22, 1925. The son of a clergyman who had been educated at Cambridge, it was natural that the young man should enter Gonville and Caius College of that institution, where he gained a scholarship in classics at the end of a year of residence, but later his inclination turned to science and he subsequently entered the Medical School of St. George's Hospital in London. He received the M.B. degree from Cambridge in 1861 and after post-graduate study in Paris, where he came under the influence of Trousseau, he settled in Leeds where he spent the next 28 years of his life as a hospital physician, consultant and medical teacher.

In 1878 he was elected a Fellow of the Royal College of Physicians of London, at the same time that Osler was elected to that body, and, as Allbutt's biographer and fellow-editor, Sir Humphry Davy Rolleston, has pointed out, there was an extraordinary parallelism in the subsequent careers of the two men.

In 1889 Allbutt suddenly gave up his practice in Leeds and accepted a "Commissionership in Lunacy," which took him to London for three years. This decision seems to have been made because of the great strain which his extensive practice

as the outstanding consultant in Leeds was making upon his physical powers. Then, in 1892, he was called to be Regius Professor of Physic at Cambridge, and there he remained until his death.

It was at Cambridge that he began in 1893 the preparation of the "System of Medicine" that bears his name as editor, and later also that of Rolleston who succeeded him there as Regius Professor of Physic. In 1915 his two-volume work entitled "Diseases of the Arteries, including Angina Pectoris" appeared, which added greatly to his reputation as a student of the cardiovascular system. During the latter part of his life he found time to give a course of lectures on the history of medicine, a subject which interested him greatly.

Perhaps we cannot do better, in ending this all too brief biographical note, than quote the following characterization of Allbutt by his long-time friend and co-author:

"In early life an original investigator both in the laboratory and the wards, then a busy consulting physician, and after that for 32 years a Regius Professor with a world-wide reputation, he was throughout an independent thinker, a cultivated man of letters and a philosopher; but greater even than these were the character and personal influence of the man who became the undisputed doyen of his profession in this country."<sup>\*</sup>

How aptly that characterization would also apply to Sir William Osler!

The theme of Sir Clifford's address was disclosed in the opening sentences which read as follows:

"Were we asked to describe in a

<sup>\*</sup>SIR HUMPHRY DAVY ROLLESTON: "The Right Honourable Sir Thomas Clifford Allbutt K.C.B. A Memoir." London 1929, Macmillan and Co., Limited, page 296.



phrase the tendency which distinguishes our age it might be replied that it is the study of origins. In the later 13th and early 14th centuries, for example, men's minds were fixed for the most part on the validity of dialectic, were bent rather upon securing mental surefootedness and sharp and true weapons of thought than upon the verification of premises."

Later on in the address he pointed out that "the study of origins, then, is not only the new method of modern criticism, of modern history, of modern anthropology, of our reading of the evolution of the universe itself

from elements which even themselves are falling under the same analytic inquiry, but the study of origins leading to a revolution in our conception of therapeutics, as of all these other studies; a revolution which as yet we have not fully understood."

He then went on to describe the part which the modern hospital would play in the study of the origins of disease and it is this final portion of the address which has been chosen for reprinting because of its prophetic quality and its appropriateness today, nearly 60 years after it was delivered. ALAN M. CHESNEY, M.D.

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THE MODERN HOSPITAL must be the modern laboratory of medicine. As in the 16th century the great laboratories of anatomy sprang into existence, in the 17th the laboratories of physics, in the 19th the chemical (Liebig), the physiological (Ludwig), the chemico-physiological (Hoppe-Seyler), the pathological (Virchow), the hygienic (Pettenkofer), so the clinical laboratories initiated but the other day in Germany by v. Ziemsen, Curschmann, and in the United States by Pepper, are the factories out of which the new medicine is to come—the medicine which, penetrating into the intimate processes of nature, learns to turn nature to her own correction. The clinical laboratory is to be the scene of the study of the origins of disease.

What are the aids and dangers of "specialism" in these advances? Against this tendency in modern studies and practice an outcry has been raised which, if a little unintel-

ligent in its way of expression, has not been without justification. In advancing civilization the applications of thought, as well as those of labor, must be divided and subdivided. The activities of the mind are at least as multiform as those of the traveler in the world, and it is impossible for all explorers to follow each other all ways. As pioneers increase in number and in adventure the more are they divided from each other, the more difficult is it for each to make himself master, even by report, of the work of all. This general law is as true for medical inquiry and for medical practice as for electricians or naval engineers. Not only so, but we may say that, in the sciences, men are not traveling over one world only, but over many. If within each world of mathematics, physics, chemistry, and so forth, explorers separate and travel out of sight of each other, what shall be said of the remoteness of explorers in these several worlds? Yet these several worlds of the

sciences are not as Mars to us, but as the various kingdoms of the earth. What goes on in each is of the utmost importance to all, and as civilization advances becomes not of less importance, but more and more. Herein lies the justification of what I have called the outcry against specialism. The protestants have perceived this interrelation of all knowledge, and they have foreseen both the narrowness of spirit and the lameness of practice which must come of such a disintegration of parts of such an isolation of efforts. Nay, they may not improperly conceive that a less amount of knowledge, duly systematized, may be of more value in affairs and in philosophy than more knowledge in scattered parcels. If the outcry has been somewhat unintelligent, this has been not in the perception of the kind of injury to learning. This is to be credited to them as virtue. But in the want of perception that some division of labor is inevitable, the protestants have seemed to care less for the advance than for the system of learning, and, indeed, to have set practice in some antagonism to learning.

#### **The values of integration**

We shall henceforth perceive, I trust, that this new movement comes from the deeps; that it is not by withstanding the very conditions of modern progress that we shall secure its balance, its concert and its sanity. Happily, evolution will be found still to consist not in differentiation only, but also in integration. As labor is divided, an organization of knowledge must proceed step by step with the division. Specialism will have its disadvantages, as all exclusive aspects of things have them. In practice, specialism will have its charlatanism, as omniscience has had

it. It is only by the increase of discernment and education in society at large that the genuine and humble children of nature will be known, and it is by progress in its best sense that such discernment and education are to be extended. I do not hesitate to say that even within my own lifetime these qualities in the relation of society towards our profession have not only increased, but have waxed abundantly, and thus is a medium formed in which the remoteness and alienation of specialized workers finds a corrective. The worker in all subjects, even in the larger operations of ordinary trade, learns that he, too, must think of the whole as well as of parts and details. Even money cannot everywhere be broken up into small change; commerce can no longer be a piecemeal affair. In the tradesman, indeed, is engendered a mind in favor of breadth of view, and even in the man in the street is begotten a hazy notion that there cannot be, as in ancient Egypt, a physician for every part of the body. There is no mean in nature but nature makes that mean; if these qualities of intellectual concert, of scientific formation of mind, of breadth and sagacity are needed, they will be found, and the way to them will be found also. Indeed, such conceptions of education are gaining apace on the general mind, though their full bearing is not yet understood. It is this very breadth of mind which is aimed at by educational reformers, by those who prize education before mere acquisition, who assert that, with the greater complexity and definiteness of knowledge, associations of workers and certain harmonies in their results must be brought about.

Those, then, who resent the specialization of science, as of other fields of human work, although they are

wrong in their way of opposition, have hold, nevertheless, of an important truth, and they agree with the Thracian King Zamolxis, who was also a god. Zamolxis observed that "as you ought not to attempt to cure the body without the head, or the head without the body, so neither ought you to attempt to cure the body without the soul, and this," he said, "is the reason why the cure of many diseases is unknown to the physicians of Hellas, because they are ignorant of the whole, which ought to be studied also, for the part can never be well unless the whole be well." (Charmides). Although then we cannot hope that every physician shall be a man of science, we may secure that he shall have the scientific habit of mind, for thus, as we have seen, he will be habituated to lay out his knowledge systematically, to trace phenomena to their source, and to see his own facts in their due relation to other facts. This is the philosophic temper which cannot be learned from books and rarely without tradition and converse with gifted men.

Some disciples are more apt to receive this grace than others; some men, many learned specialists, are incapable of wise scientific judgment; no examination can test it; no memory can secure it; it is in part a product of time, which accepts what is good and rejects that which is transitory. It is to be assimilated from organs of knowledge, such as universities, and not from mere polytechnic institutions. It is the highest reward of the teaching from a living source, for, as Professor Butcher says, "the test of life is to impart life."

Too many students pass through their schools without an awakening of their minds. They believe their superficial knowledge to be exhaus-

tive, and they become the mouth-pieces of ready-made opinions.

I should be an ill bird were I to say anything today in deprecation of the value of lectures of my own wares. In bygone times I have said much in deprecation of them, urging that they are a survival of a time when books were scarce and dear, and when knowledge was looked upon as spoonmeat. I have helped forward the cry that the laboratory must be the future living source of knowledge and of inspiration. While men were blind to this new truth it was necessary to urge it to the hindrance of other needs which men were not likely to forget. Now that the battle is won, and the laboratory is everywhere with us, we may turn again to consider what there is in older methods which we would not willingly lose. In lectures we may still find the virtues which flow from living converse with thoughtful men who have been over the field of our studies before us, who can show us how their minds worked, how they systematized their knowledge, how they came to see it in the light of other researches, how they inspired it with human interest. For such ends as this we must have no mere retail dealer in knowledge for our lecturer. In all universities it is now recognized that, except for tutorial work, the lecturer to beginners must be the leader in his faculty. He it is who can give the true first set to the thoughts of young men who are entering into the subject of their lives; older men and advanced work may well be undertaken by demonstrators.

#### **Specialism in its broadest sense**

Thus far I have considered specialism and breadth in respect of the education in our profession, but a

larger problem lies before us, namely, that wider culture which lies beyond the confines of all professions. One of the difficult conditions of our own generation is the urgent pressure on young men and boys by reformers and anxious parents who desire, not unreasonably, to mold their sons into money-making machines at as early a date as possible. When I took my degree at Cambridge our course was, in the first place, to take an arts' degree, at that time only to be had in the arts. Thereafter came the natural-science studies, with their tripos, and after that again the clinical studies proper to our professional life. This course occupied us up to the age of 25, at least, and in some respects it was a far better education than we now bestow. Now, from the first hour of the medical students' arrival in Cambridge he is too often turned at once into the narrower channel of his special calling, and he even tries to pick up a precarious instruction in clinical work while he is ostensibly at work on the preliminary sciences. Nay, such is the pressure of the times, parents and teachers are getting impatient even with this rate of speed, and are insisting that even at school time is wasted in classical and other broader studies which might be utilized for science, and that men should come up to the university ready to "specialize" farther still. Among other strong arguments in favor of this reform is this: That whoso means to practice surgery should acquire manual dexterity, and that this advantage cannot be acquired by the ordinary man unless he begin to educate his plastic fingers in early youth. This argument I will dismiss in a word by saying that, in my opinion, every man should be educated in a handicraft or mechanical art of some kind during his early youth. The importance of

this element of education is curiously forgotten even by such a mechanical race as the English and American. So much for surgery; the boy who has learned to use a lathe or to make a chest of drawers will have fingers apt enough for surgery.

There is, moreover, another means of education most useful in early life, namely, that of measurement. At every national school youths of both sexes should learn to measure accurately to thousandths of an inch and to hundredths of a gram; thus the eye is taught with the hand, and, what is of more importance, the mind is trained to know what accuracy means. These occupations, invaluable in training of character and skill as they are, would add nothing to the burden on a growing brain.

Of the sciences, those of memory and observation only should have a place. The mind of youth is in a stage when the imagination, rather than abstract thought, should be cultivated. To collect natural objects, and thus to be drawn into the haunts of animals, into the habitations of plants, and to see the structure of the earth, excites and enlarges the imagination and strengthens the memory at a time when these faculties are ripe for culture. I have never happened to meet a young man, educated in abstract science at school, who seemed to me to have used his time to the best advantage. If, for the present, it has led to success in the narrowest sense, I think we are entering even now into a generation when success must be based on a larger education than this—on an education in letters and in the humanities, as well as in the laws of the material universe. Rousseau well said we should not teach children the sciences, but give them the taste for science.

We are apt to forget that even in

these days of science, advancing by leaps and bounds, that still the greater part of man's life is spent in the expression of his thoughts and in converse with mankind. He should, therefore, have learned to handle the ideas which concern himself and his fellows, not only in their material conflict with nature, but also in those higher spheres of history, ethics, politics and social aspiration for which alone man can be said properly to live. If we regard the mastery of modern man over Nature in any other light than as clearing for us a larger base for a reconstruction of societies which shall be more wise, more humane, more beautiful in spirit than in the past, there would be nothing but sadness in the contemplation of modern life, with its "gay afflictions, golden toil." No doubt we must rebuild our material home, but we ourselves also must be born again. (Newman.)

The uses of learning Latin and Greek lie in this—that in these studies, more than in any others, the ideas which concern man in his highest endowments of mental, spiritual and social life are manifest, and not only so, but are manifested in languages the most virile and beautiful the world has known. Latin and Greek are called dead languages. If so, the Hermes of Praxiteles and the Venus of Milo are corpses. Latin and Greek contain in perfection of form not modern science, but that for which modern science exists—the best that man has lived and thought. It would be a narrow pedagogy which should assert that strong and penetrating thought, and noble and chastened imagination are to be found only in Latin and Greek; we may be thankful, indeed, that the English language is or has been as noble an instrument, and enshrines at least as fine a literature. Yet it has

been said long before our time that to know one literature only is to wander in the sphere of letters without a scale of relative dimensions—to lose the faculty of comparison for lack of standards of comparison. To learn to speak a language like a parrot is but to train a mechanical memory. Latin and Greek, however, although they contain the finest records of human thought and action, are, as I have said, not the only shrines of letters, and the noble literature of France, Germany or Italy may take the place of either of them, and carry the additional advantage of common usefulness.

### **The glory of the profession**

But do not let us forget that our calling derives its honor not from its power of repairing the carnal body; were this its only title to respect it would take a low place in the hierarchy of professions. Those professions which deal with the ends which alone make life worth observing—such as that of the law of religion, philosophy and of the fine arts—would in such case regard our occupation but as a higher kind of farrery. The glory of our profession, from the hour when Hippocrates, in that oath wherewith like a trumpet, the notes of which reverberate still through the ages, summoned us to take our place in the forefront of the fight, has been that we are concerned not only for mankind, but for men. The ideal side of a physician's life is that he brings healing or solace to his human fellow. The Greek philosopher, like the modern socialist, would sacrifice man to the state; the priest would sacrifice man to the church; the scientific evolutionist would sacrifice man to the race. Yet, while all these elements of cooperation and of aspiration work together

for good, we thankfully see that, after all, the tendency of civil evolution, as of Christian ethics, is to use society as a means for man himself, as a means to purify and to elevate the individual soul. The physician, then, is more than a naturalist; he is the minister not only of humanity at large but of man himself. Thus it is that the humblest of us, and he who labors in the darkest and most thankless parts of our cities, is never a drudge; in the sight of the angels he is illustrious by the light of his service to men and women. The man of science can tell us delightful things about birds, flowers and wild life, for all life is various and touching; he can tell us queer and uncomfortable things about our insides, amazingly useful things about steam and electricity, but at bottom, when the marvel is over or the material gain is won, all this grows stale. Ideas concerning the harmony of the spheres, concerning cosmic evolution, concerning the inhabitants of Mars, are prodigious, they may uplift us sometimes with a sense of the greatness of man's inheritance, but alone they are cold and unsatisfying. The child of his age feels that a sonnet of Wordsworth, a flash of Browning's lamp into man's heart, an idyll of Tennyson give us thoughts worth more than all the billions of whirling stones in the universe. In strengthening and cherishing this inner life of his brother and sister, happily, the physician has many fellows, but the physician alone among them all holds sacred the lamp of the personal life for its own individual sake; he alone forgets church, state, nay, even the human race itself, in his tender care for the suffering man and for the suffering woman who come to him for help.

### La Medicina en el siglo XIX

El presente artículo es parte de un discurso

pronunciado en 1898 por T. Clifford Albutt (que fué Profesor de Física de la Universidad de Cambridge) en *John Hopkins University*. Como en su nota preliminar explica el Dr. Alan M. Chesney, las ideas expresadas por el autor en una época que ya parece remota, podrían, sin embargo, aplicarse con provecho en nuestra edad atómica. (El texto completo del discurso fué publicado en el *Bulletin del Johns Hopkins Hospital*, vol. 9, Dic. 1898, pp. 277-285).

Lo mismo que en el siglo XVI se crearon los grandes laboratorios de Anatomía; en el XVII los de Física; en el XIX los de Química (Liebig), de Fisiología (Ludwig), de Química fisiológica (Hoppe-Seyler), de Patología (Kirschow) e Higiene (Pettenkofer), así los laboratorios clínicos iniciados, no hace mucho tiempo, por v. Ziemsen y Curschmann en Alemania y por Pepper en los E.U., son como los talleres de los que ha de salir la nueva Medicina. Las críticas dirigidas contra esta nueva Medicina, a causa de la creciente especialización de ésta, no parecen tener en cuenta que una civilización avanzada exige no sólo una división del trabajo sino también una división del pensamiento, y que esto es válido tanto para la ingeniería como para la investigación y práctica médicas. Además, a la larga, la evolución científica ha de tender no sólo hacia la diferenciación sino, de nuevo, hacia la integración. Este concepto de una integración necesaria, ha ido imponiéndose en el campo de la educación. Ahora que la batalla del "laboratorio" está ganada, debemos detenemos a considerar cuáles fueron, en los viejos métodos de enseñanza, los valores que no quisiéramos perder. En las conferencias se puede establecer una comunicación con la mente de hombres que antes de nosotros exploraron el campo de nuestros estudios; y podemos ver cómo trabajaban esas mentes, cómo llegaban esos hombres del pasado a sistematizar sus conocimientos a la luz de otras investigaciones, y cómo les movía su interés por lo humano. Mas para ello nuestros profesores han de ser algo más que meros comerciantes al menudeo en conocimientos. En todas las Universidades ha sido reconocido últimamente que los instructores que dan conferencias para estudiantes principiantes han de ser los mejores de la Facultad. Mas hay un problema grave que trasciende el campo de la educación universitaria: la presión ejercida por ciertos reformadores y por ciertos padres, ansiosos de convertir a sus hijos en máquinas de producir dinero lo más pronto posible. Según éstos, el reducido tiempo (en comparación con lo que era usual en la anterior generación) que se emplea en los estudios clásicos y humanísticos, es



tiempo perdido, que mejor se emplearía en la "especialización." Se olvida que, incluso en nuestra era científica, la mayor parte de la vida de un hombre se emplea en la expresión del propio pensamiento y en la comunicación con otros hombres; que, por otra parte, el dominio del hombre sobre la naturaleza debe tener por objeto último la organización de la sociedad, haciendo ésta más justa, más sabia y más bella que en el pasado; se olvida que los estudios clásicos son una fuente de sabiduría en lo que se refiere al

conocimiento de lo más alto del hombre. La profesión médica no ha de servir tan solo para reparar el cuerpo. En nuestra profesión, los mejores, desde los tiempos de Hipócrates, se han preocupado no sólo por el bienestar físico del género humano sino por el Hombre. El papel ideal de un médico consiste en curar y en consolar a su prójimo.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

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## New Pamphlet on Quacks

The AMA's Bureau of Investigation has issued a new pamphlet on mechanical quackery. A three-fold leaflet, it is designed to help identify some of the devices, gadgets and machines used for alleged treatments or cures of many diseases. A description is given of quacks in general, some of the better-known fraud cases, and ways to identify quacks in local communities. This pamphlet will be mailed by the AMA Bureau of Investigation on request.

# Medical Education and the Distribution of Physicians

JOHN B. TRUSLOW

## Introduction

MEDICAL SCHOOLS are intimately involved in the distribution of physicians, but this intimacy certainly has a number of very troublesome features. Most controversial is the extent to which we are legitimately and wisely involved. Most baffling is the curious indefinability of almost every factor involved in the measurement of effective physician distribution.

To begin with, physicians themselves refuse to "act like statistics should." Nice, clean-cut numbers taken from the Board of Medical Licensure's roster of "active practicing physicians" and neatly ratioed against the latest population estimates of the Bureau of Census, produce almost meaningless impressions of effective physician distribution. Retirement, major interests in farming or business ventures, specialty interests, and limitations of practice of one sort or another do not show

through these numbers. There is an astonishingly large roving population of physicians—and certain special concentrations of professional people occur around medical schools, for example, and the United Mine Workers Funds.

In the second place, there are many viewpoints with highly emotional overtones, focused upon the problem of physician distribution and even exploiting it in support of their own special interests. These often obscure the *fundamental issue* of dissemination of competent medical skills and services—behind driving interests of general practitioners to achieve their proper recognition and place in the sun, earnest efforts of people concerned with rural health, pressure of some of our smaller community hospitals for interns, the cry for postgraduate training programs, and a host of other broad and fundamental issues.

Finally, one assumption which troubles me and many of my colleagues in the faculty of medicine is the notion that the product of medical education is a uniform one, and the distribution question then seems to resolve itself into something akin to merchandising. This assumption is

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widespread in the thinking of even the best informed laymen, not to mention a host of our colleagues in medical practice.

As educators, must we not declare more vigorously than we have to this point, that the production of standard distributors of *whatever* medical knowledge and experience can be crammed into a four-year course plus internship and perhaps residency training—is far less than a worthy goal of medical education today? Nothing could be more stifling to the more fundamental educational dedications—of recruitment and selection of individuals capable of grasping conceptual and basic knowledge, of thinking physiologically, of observing accurately and sympathetically, of enjoying the pains of skepticism and curiosity, of developing an intellectual self-discipline.

These do not combine to a standardizable product, subject to distribution in the merchandising sense. There are no complete physicians anymore and nowhere can two or three physicians be gathered together without clear acknowledgment that each of them possesses *and is responsible for sharing* knowledge and experience in some area of medicine beyond each of the others. Dispersion of this aspect of the educational atmosphere is far more fundamental, meaningful and candid in the nature of the problem than the simple geographical distribution of medical school graduates, today.

#### Some data from Virginia

With this introduction, let me proceed to present some data from the State of Virginia which appear to give evidence of radical changes in the patterns of medical practice over the past 14 years, along lines antici-

pated, and generally in the direction of a higher quality of medical care for more and more people. (This period, incidentally, covers the life of the rural scholarship program in Virginia.) These changing patterns appear equally as reflective of the advances of medical knowledge and of the evolution of cultural patterns in the state as a whole, as they are sensitive to the economic facts of rural and metropolitan life. Per capita income and purchasing power of the so-called lower income groups, both in industry and agriculture, has never been so great as it is today.

Over the state, in this 14-year period, certain changes stand out sharply. The number of cities, towns and crossroads with practicing physicians decreased from 428 in 1940 to 361 in 1954—corresponding with an almost identical reduction in the number of places with only *one* physician in residence, from 239 in 1940 to 164 in 1954. In the same period the number of towns with 10 or more physicians increased from 31 to 43—and with 6-9 physicians, from 18 to 21. These increases were coincident with the expansion of hospital facilities, and significantly the additional physicians were predominantly individuals with two years or more of house staff training.

Indeed, the most striking figures perhaps are the totals which represent the increase between 1940 and 1954 in practicing physicians (591) in the state as a whole, and the increase in certified specialists (552). In other words, the *effective* increase in practicing physicians has changed the ratio of general practitioners to specialists from 92 per cent in 1940 to 74 per cent in 1954. Still concentrated, to be sure—64 per cent of these board-certified practitioners are centered in the four cities of Richmond, Norfolk, Roanoke and Char-

lottesville in 1954, as compared to 80 per cent in those four cities in 1940—there is evidence that we are now at the critical point in these cities, persuasive of an accelerated dispersion of this particular group, beyond the metropolitan centers.

These observations and others which give evidence of effective development of seven major regional service areas in the state and 16 growing areas, produce a picture which describes a very definite redistribution of physicians. Outside of the two medical school centers, major medical communities have grown from two to five in number in this 14-year period; and at the other end of the scale the lone physicians in practice have not only decreased in numbers, but their *average* age is 10 years less. Moreover, the *average* population of the towns in which they practice has doubled.

#### Evaluating major factors

We are interested in trying to evaluate the major factors in this change and to separate those which might be described as general background trends, on the one hand, from projects of expediency and pump priming efforts, on the other. This study is far from complete, and these are only tentative impressions at this time. Valid studies may take more time and effort and money than can be mobilized for the task. They should include a vast number of medical school activities with a strong distribution component which are only mentioned in this paper—preceptorship program, for example; regional hospital rotational program and teaching affiliations of all kinds. Nevertheless, we have come to focus on five major factors.

Comparison between home addresses of medical students at the

Medical College of Virginia at the time of their application, and their locations in practice some years later, confirms the observations of Weiskotten and others that this is a most important correlation. Sixty-five per cent of 105 physicians from the classes of 1951, '52, and '53 in the Medical College of Virginia, have now located either in the same town or city or in one of similar size within the county or a neighboring county. Thirteen per cent have moved from smaller to larger communities; 22 per cent from larger to smaller localities. Perusal of the records of the group settling in small towns for the practice of medicine has disclosed the important impression that they were distributed about equally through the class with regard to class standing. Apparently there is much greater significance to the class standing of our students from rural areas, in their college choice and record, than in the local high school background. If this impression—that a reasonable proportion of our ablest students are attracted to the smaller cities and towns—is borne out with future studies, it gives much needed support to our determination to hold to high standards against the pressure in some states of rural congressmen and their communities to lower requirements for admission and promotion in the case of rural applicants. The challenge of medical practice today outside the great metropolitan centers can be met only by men and women better trained, more competent and more dedicated than ever before.

In the second place, there is an almost direct correlation between the construction of hospital beds and the increase in the number of physicians in a given town or portion of the state. Not reported in these studies is the development of two such areas

in the past 12 months where I have been informed that in one case three and in another case four board-certified internists and surgeons have gone into group practice in a community just completing a Hill-Burton hospital structure.

Thirdly, in Virginia, community initiative, sparked and guided in many helpful undertakings by an organization called the Virginia Council on Health and Medical Care, has effectively established young physicians in single practice, and in groups up to three or four, through an effort directed toward the financing of the initial office or clinic building, to be liquidated by the doctors themselves over a period of years. This community effort goes far beyond financial matters, to the consideration of the doctor's family in terms of housing, schooling and neighborliness in general. The group practice idea is gaining, slowly but quite steadily, particularly with emphasis on the association of two or three young men with effective 24-hour coverage, and the development of special interests as guiding principles in practice.

Unquestionably the saturation of the larger medical centers with internists and surgeons, and even a few of the medical specialties, has reached a critical level in persuading young men into the smaller cities and towns throughout the state. In the 14-year period under study, 110 of the 552 certified specialists added to the ranks of practicing physicians, have settled in cities of less than 35,000 population. It is difficult to know what weight to place on the expressed preference of senior students in medical schools for types of locality in which to practice some years hence—but it may be significant that among 300 seniors personally interviewed in the classes of 1953, '54, and

'55, 32 per cent came from towns of 10,000 or less, but 54 per cent stated their preferences to settle in towns of this size—of these 28 per cent were upper third students, 40 per cent middle third, and 32 per cent lower third.

#### **Rural scholarship program**

The rural scholarship program, the experiment in medical education on which I was invited to report, in the State of Virginia at least, has been up to now a very minor contributor to these events. Standing on its own feet only after three war years plus three years of veterans' educational benefits which provided the means for repayment of the scholarship money—the program inaugurated in 1942 cannot be evaluated with any degree of finality. Certain features of the trial period to date are probably significant, however.

A report of the Health Commissioner dated August 1, 1955, reports 81 scholarship students in classes in the Medical College of Virginia and the University of Virginia graduating from 1942-1954 inclusive. Thirty-two of them are now settled in "approved rural locations" (40 per cent), and there are eight scholarship students now in military service. But—15 have reimbursed the state for the scholarship funds; five withdrew from the program; and 22 are in the category described as "obligations for various reasons pending."

Following our rural scholarship students from the Medical College of Virginia along a little more closely, we find that of the 38 graduating in these years, 21 are effectively in rural practice. Of these 21, 17 are practicing in the same small town as the one from which they applied to medical school or in a small town in the same general area. Only four individuals were added to the rural practice

population out of larger cities in metropolitan areas—in this small sample, at least, about half as many (percentage-wise) as migrated from large to small towns in the same period *without* the scholarship stimulus! Insignificant statistically, perhaps, this is still a curious observation.

From 1950-1954, some 10 scholarship students a year have graduated from the two medical schools in Virginia. A TOTAL of 26 over this period were enrolled at the Medical College of Virginia. Twenty had lived all their lives in rural areas, but six had been city-bred. Of the former, 13 are back there practicing, but none of them with more than one year of internship! Of the city group, four are practicing in the country, only one with more than a single year of hospital training. This presents a better implementation of the scholarship program than the whole 12-year sample—but for its influence upon the recruitment of physicians to rural areas, nothing beyond the general picture can be claimed.

The whole scholarship theory, with a period of indentured service, deserves our most careful study, particularly now that the Armed Services are introducing this as a major recruitment pattern to the regular corps. In the opinion of some, the need is so great—for rural physicians, in one instance, and for the regular medical corps, in the other—that a combination of obligated service with financial assistance when wanted most, constitutes a reasonable balance of values in the early life of a young physician.

On the other hand, there are those no less respectful of the need, who not only question the effectiveness and propriety of indentured service

as a recruitment device, but feel that it implicates the medical schools in a partnership of approval of a pattern of intellectual and professional development in medicine inconsistent with educational principles. This opinion holds that experience has proven that service under obligation, unrelated to the patient at hand or to the professional growth of a man, loses something fundamental to the practice of good medicine. It further contends that there are other ways to meet the needs of the rural areas and of the Armed Services—ways consistent with the principles of medical education.

One of the curious features about many of the obligated service plans in practice—and a feature of the one in Virginia today—is the two-year-maximum graduate training provision. Scholarship students are not permitted to take more than two years of hospital training before they carry out their service obligation in "a rural location approved by the Commission of Health" or in the state department of health or the mental hospital system—because, as one official has put it, "the more educated a man becomes, the more he wants to stay in the large cities." In the past few years, three rural scholarship students have appealed to us for assistance in their efforts to complete their training before entering practice—two in pediatrics, one in internal medicine—in rural Virginia. The scholarship program seems to imply that less than the best is good enough for the rural areas. Leadership in the Virginia Academy of General Practice candidly states that in 1955 two years should be a *minimum*, not a *maximum* requirement for a general physician in rural practice!

As for the Armed Services program



of undergraduate scholarships and accumulated service, I sincerely believe medical educators would do wisely to support fully the fundamental approaches recently taken by the Surgeons General to improve the opportunity in regular service to practice good medicine under reasonable conditions of security, professional growth and recognition for merit—while discouraging the scholarship approach to the recruitment problem.

The fundamental concern of medical education in the distribution of physicians resides in the qualitative rather than the geographical or special interest approach. Respecting the close correlation between the residence of medical school applicants and their ultimate location in practice, we must eschew any temptation to double-standards in the selection and promotion of students with reference to service obligation in areas of acute need. The point is that we *can*, if the story in Virginia has as wide implications as I believe that it has.

Acknowledging the importance of hospital beds, the group practice idea, the significant influence of a voluntary health organization such as the Virginia Council on Health and Medical Care, and the saturation point reached by many large metropolitan centers in our nation in respect to well-trained physicians and surgeons—our involvement as institutions of medical education in the problem of physician distribution boils down to vigorous support of these community efforts, dissemination of these professional and economic facts, and *steadfast dedication* to our primary responsibilities of selecting well, educating vividly, and imparting to each new generation of student-physicians the traditions of service, professional excellence and inspiration in our respective medical communities.

### La educación médica y la distribución de los médicos—

La distribución de los médicos en los Estados Unidos es un problema que ha suscitado muchas discusiones. Una distribución justa y eficaz de los servicios médicos debe hacerse teniendo en cuenta el fin último de proporcionar servicio médico de la más alta calidad al mayor número de personas, y para ello no debe olvidarse que hoy día ya no hay médicos "completos," que cada médico depende de la ciencia y experiencia de sus colegas. Algunos datos recogidos recientemente en el Estado de Virginia indican los cambios radicales que han tenido lugar en la distribución de médicos y en la práctica médica durante los últimos 14 años, y reflejan, además, el progreso cultural y económico en la vida rural y urbana.

Durante dicho período, en Virginia, el número de lugares que tenían médicos bajó de 428 (en 1940) a 361 (en 1954). A estas cifras corresponde la reducción del número de lugares con *sólo un médico*, de 239 (1940) a 164 (1954), y el aumento del número de ciudades con 10 o más médicos, de 31 a 43. Estos aumentos coinciden con la expansión de las facilidades de hospitales. Más significantes aun son las cifras que indican el aumento total, en dicho período, en Virginia, de médicos con práctica general (591) y de médicos especializados (552), lo cual significa que con el aumento total de médicos ha cambiado la proporción del número de los dedicados a la práctica general al bajar ésta del 92%, en 1940, al 74% en 1954. Aunque el 64% de los especialistas se hallaban aún en 1954 en las cuatro grandes ciudades del Estado, hay evidencia de que está creciendo también el número de especialistas fuera de los centros metropolitanos. Además, los centros médicos importantes, fuera de las dos grandes Escuelas de Medicina, aumentaron de 2 a 5. El papel de la educación médica en esa redistribución se puede evaluar (advirtiendo que el presente estudio no debe considerarse como completo y definitivo) teniendo en cuenta los siguientes factores: De los datos recogidos por las Escuelas Médicas del Estado, se desprende que entre los médicos (graduados de dichas Escuelas) existe hoy la tendencia a cambiar el lugar de práctica de comunidades mayores a comunidades menores (indicio de la mejora de los servicios médicos en tales lugares), y que hay una correlación casi directa entre el aumento de las facilidades de hospital y el número de médicos en una ciudad o parte del Estado. Dicho Estado, con la ayuda del *Virginia Council on Health and Medical Care* (Consejo de Salubridad y Aten-

ción Médica del Estado de Virginia) ha logrado se establezcan en él jóvenes médicos, financiando la construcción de oficinas médicas o de clínicas. Está así aumentando la práctica médica colectiva (en grupos de 3 o 4 médicos), y ello resulta en un servicio eficaz durante las 24 horas. La saturación en los centros médicos principales de cirujanos y otros especialistas, ha contribuido también a persuadir a los jóvenes doctores a buscar ciudades más pequeñas para su práctica. Entre 1940 y 1954, 110 de los 552 especialistas se

establecieron en ciudades de menos de 35,000 habitantes. El programa de becas para estudiantes procedentes de zonas rurales, experimento en la educación médica sobre el cual el autor ha hecho un informe detallado, ha contribuido, hasta ahora, sólo en muy pequeña medida al desarrollo descrito.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

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### "Work For Those Who Bear World's Burden"

Eighty-four new graduates of Cornell University Medical College were urged, at their commencement this June, to give most of their attention to a "seriously neglected group—the men and women 20 to 50 years old who bear the burden of the world on their shoulders." The speaker was Dr. Wilson G. Smillie, emeritus professor of public health and preventive medicine, now executive director of the State Charities Association.

Dr. Smillie said it was this age group that supported the aged, infants and incapacitated and called them the community's greatest asset, whose health should be promoted in every way.

# Symposium on the Compensation of

## Faculties of Clinical Departments

THE FOLLOWING pages of the Journal are devoted to a Symposium on the Compensation of Clinical Faculties. The various articles were presented as addresses at a symposium on the same subject held at the 66th Annual Meeting of the Association of American Medical Colleges, Swampscott, Mass., October 1955. A paper by Dr. George Packer Berry, dean of the Harvard Medical School, on "The Harvard University Plan", which was presented at Swampscott, is not included here.

### The Chicago Plan

LOWELL T. COGGESHALL

JUST PRIOR to the beginning of the century and until his death in 1906 President Harper of the University of Chicago made a determined effort to establish a new medical school on the campus in which the faculty would have the same educational philosophy, principles and responsibilities as in any other university division. He was influenced most in his thinking by Mall and Barker, who before leaving the university for Johns Hopkins University where one became professor of anatomy and the other professor of medicine, formally proposed in 1902 a hospital at the university and a program of med-

ical instruction which today would be called the "strict whole-time plan."

The plan materialized later under President Burton in 1916, largely under the aegis of Dr. Frank Billings, an outstanding clinician and certainly the medical leader of his community. He was successful in urging certain citizens of Chicago to match funds of the General Education Board totaling five and a half million dollars for a new four-year school to be established on the whole-time plan.

Unfortunately the war interfered and a new start had to be made. An interesting historical document was produced in this connection by a special committee recommending to President Burton a charter for the new four-year school when and if it could be started. It goes as follows:

Dr. Coggeshall is dean of the Division of Biological Sciences of the University of Chicago. He is also currently a Special Assistant in the Department of Health, Education and Welfare.

"The aim of the University of Chicago medical school should not be primarily to increase the number of practitioners. Future progress in medicine depends upon the advancement of medical knowledge and it is believed that the University of Chicago is in a peculiarly favorable position for promoting research and training of investigators in the medical sciences."

It continued along these same lines but enunciated three principles very strongly:

1. The clinical departments should be established at the university.
2. The departments should be university departments in every sense of the word.
3. The departments should have for their chief aim the advancement of medical knowledge as to both teaching and research.

Finally in 1927 the new school was built on the university campus with complete clinical facilities with some 220 beds.

During the latter part of the period referred to above there was a general agreement that Rush Medical College would become the graduate school while the university would confine itself to the undergraduate educational program. Up to that time Rush was affiliated with the university and a distinguished faculty provided the clinical training. However, many disagreements arose on certain basic issues, largely involving the number of beds available for an already-existing clinical faculty, the selection of the clinical faculty for the new school, and many other less well-defined but more telling personal issues which prevented the harmonious culmination of the plan. The problems and difficulties that beset this young institution were staggering. There was a great deal of professional distrust at the outset on the part of those outside the university which initially

tended to ostracize the faculty from local medical activities. Actually some of the outstanding contributors to medical education at the institution became its most bitter critics. The effects of the great financial panic in 1928 also entered the picture very strongly. There were multitudinous factors which truly tried the souls of those responsible for getting the new school off to an auspicious start.

Looking back some three decades later it is almost impossible to understand how it could have succeeded. In my opinion there were two reasons, however, which stand out above all others. First, the university owned its hospitals and facilities and was to a great extent independent of outside influences. Second, and more important, there was assembled a devoted and respected clinical faculty possessing the highest professional ability and ethical standards, who to a man were unwilling to compromise or deviate from their basic objectives.

After a quarter century there has been a general acceptance of the plan in the local area even by most of those who were formerly highly critical. I would say that the relationship between the school and the outside profession is not too different from that which exists at any medical educational institution and perhaps even better than in some. If anything, the institution has enhanced the development of medical activity in its community and gained general acceptance and approval. In this report, however, I shall try to be as objective as possible and refrain from philosophizing or the making of recommendations.

#### **Administration**

The dean of the division of the biological sciences is responsible to the chancellor of the university. The

division of the biological sciences is the largest of four major divisions of the university, the others being the physical sciences, the humanities and the social sciences. In the biological sciences there are seven nonclinical departments, seven clinical departments, three research institutes and two degree-granting committees. The medical school is an integral part of this setup but is not distinguished by separate faculty or budgetary arrangement. The dean is in essence dean of the graduate school for this division as well as the medical school. There is an associate dean for the clinical area, an associate dean for the nonclinical area, and a dean of students, all of whose responsibilities are self-apparent. The superintendent of the university hospitals is responsible to the dean and submits his budget to him for approval. Thus frictions between the operational and educational programs are kept at a minimum. All professional appointments are faculty members and their advancements both academically and financially are dependent upon the school and not the administrative staff of the hospital.

The operational policy for the hospitals, particularly that portion which involves the problems common to the hospital and the medical school are decided at a weekly meeting of the Subcommittee of the Clinics which is composed of the chairmen of the various clinical departments and the superintendent, with the dean acting as chairman. A very clear-cut separation is maintained between the superintendent's responsibility (which is that of maintaining the patients in the most comfortable manner with no jurisdiction over the number of patients who may be seen by any physician, the number and size of departments, et cetera) and the professional side, where educational, re-

search or medical care aspects are the responsibility of the dean with his academic staff. The hospital is responsible for a school of hospital administrators.

### **Faculty**

The faculty is appointed by the dean and his advisory bodies on the basis of their qualifications for teaching, research and professional ability. (These abilities are not listed priority-wise.) As a rule approximately half the time of the individual is spent in the care of patients and one half time in teaching and research. There is considerable flexibility, however, and some devote their full time to research—i.e., there are professors of biochemistry and psychology in the department of medicine without patient responsibilities. Others by preference devote most of their time to the care of patients and clinical research. The department of medicine has a rule of thumb that three one-half days per week should be spent in the outpatient department, one to one-and-a-half hours daily on the wards, and the remainder in teaching and research. The inducements to be identified with this faculty are many but certainly are not financial. The most attractive features are the intimate association with small groups of students and the opportunity of having the patient and research areas under the same roof and usually in adjacent quarters. On recent occasions there have been opportunities to evaluate the whole-time plan and those concerned—faculty and administration—have rejected any suggestions which would allow basic alterations.

Incidentally, in the clinical area there are 42 interns, 103 residents, 32 postdoctoral fellows, 54 instructors, 52 assistant professors, 17 asso-

ciate professors and 50 professors. The appointment to a professorship is not confined to the chairman of a department, there being 16 professors in the department of medicine, for example.

### **Students**

Under the whole-time plan the first two years of the students' training is along conventional lines. During the junior year the students are placed in the wards throughout the year, but 25 per cent of the class is out of residence each of the four quarters. Thus a constant number—approximately 54—are always in attendance on the wards and in the outpatient department. During the off-quarters (assigned by the dean of students according to the desires of students insofar as possible) most of the students remain in the university to do research, and take electives or attend educational exercises of their choice. Although not required, almost all the students are engaged in a research program independently or with a faculty member. To my mind, this is possible largely because of the intimate contact of the teacher and student throughout the day. Every patient regardless of his financial status coming into the hospital is informed that it is an educational institution, and that his first contact will be with students.

It might be assumed that paying patients would be averse to being used for undergraduate and graduate teaching and that they would be reluctant to be identified with the research activities. Moreover, it is contended by some that attending physicians whose income is independent of the number of their patients might be inclined to show less personal concern than their colleagues in private practice. But

neither of these points seem to hold true in our experience. The constant attention given to patients in the teaching and research program instills in them a feeling of security and importance that has led to constant return visits and to an ever-increasing number of referrals for new admission. Last year, for example, there were 19,684 hospitalized patients and 184,468 O.P.D. visits. According to best estimates approximately 60 per cent are self-referred and 40 per cent physician-referred. Incidentally, further increases for hospitalized patients are limited by available facilities and the out-patient by controlling the number of clinic sessions on the part of the staff.

It may be of interest to extend these figures, because a summary of hospital statistics often tells more than pages of prose. During the last fiscal year ending June 30, 1955, of the 19,684 admissions there were 476 deaths, or 2.4 per cent; 7,053 operations and no anesthetic deaths; 3,499 deliveries, one maternal and 39 infant deaths, or 1.1 per cent; 374 autopsies, or 78 per cent of total deaths. Of 7,053 operations, normal tissue was found in 36 instances, or .055 per cent.

The whole-time plan as far as the students are concerned has resulted in a gradual reduction of didactic lectures in favor of tutorial exercises at the individual or group level.

### **Resident Staff**

The resident staff is appointed on the same basis as in most universities with teaching hospitals. However, the somewhat unique pattern of our operations, in which the professional fee of the clinical staff remains with the university, brings up the most



frequently-asked questions about the relation of the surgical resident to the paying patient. He begins as the assistant to the attending surgeon, works closely with him in the out-patient department and in the hospital. As he becomes more proficient he assumes more responsibility until he finally is permitted to stand on the right-hand side of the table. Finally the surgical resident has patients in the out-patient department and is in complete charge of the surgical procedures if indicated. The staff surgeon is always available within the hospital. Although there is not a large number of indigent surgical cases available, I doubt the wisdom of using the patient's financial status as a criterion for establishing the resident's professional competence. There is only one way of evaluating any program and that is the final product. As indicative only—of the first 12 chief residents in surgery through 1950, eight are now full professors and two are associate professors in major universities.

### **Financial Structure**

The whole-time as originally visualized for the University of Chicago, for which there was no precedent, was and is an adaptation of the group practice of medicine to medical education as contrasted to individual private practice. There had been a belief that funds in hand and pledged would be sufficient to maintain the hospital without reference to the patients' ability to pay. The financial disaster of 1928 and subsequent years rapidly destroyed that illusion. Hence almost from the beginning all patients were charged according to their ability to pay and were utilized on the educational program. To me, a virtue was made from a necessity.

The patient coming to the hospital today is charged for his hospital accommodation on approximately the same basis as at any other hospital in the city. He receives as much or more medical attention at less cost because of the constant presence of the staff which results in many consultations. Only those requiring elaborate study and time are charged to the patient. The charges for X-rays, laboratory procedures and other diagnostic tests are relevant to costs of similar local hospitals. All professional fees go to the university the same as do the tuition fees of the student. The choice of establishing the fee is left to the physician. Some prefer to set their own charges; others leave it to the hospital administrator's office and these again are on the basis of comparable rates in the area. For the out-patient department there are certain fixed charges for initial visits, returns, et cetera. However, it is important to point out that all these costs are approved by the Subcommittee of the Clinics which, as I said, includes the chairmen of all clinical departments, and are not the sole responsibility of the hospital administration. Approximately 10 per cent of the patients are indigent—or at least non-paying—and over 80 per cent have some sort of prepaid insurance. Incidentally, the doctor can see any patient he wishes with or without charge by simply writing on the admission slip, "Admit regardless of ability to pay." This insures that there shall be an appropriate number and kind of teaching and research patients at all times.

The funds are re-allocated according to the budgetary needs of the various departments—clinical and non-clinical. Thus no particular department or section receives preferential treatment because it is in a

category of a higher earning capacity. It is very firmly held that the medical school must support those necessary activities which are equally important but financially less productive. Approximately 75 per cent of the total budget comes from the patient fees and hospital charges. The remainder comes from special endowments in which the university holds approximately \$25,000,000 for the biological sciences division. It should be pointed out, however, that these funds are primarily restricted to research purposes.

As stated earlier, this exposition was intended to be as objective as possible. I would like to say, however, the plan has permitted a university to establish and control a complete medical school, activated at the least propitious time imaginable. From the very beginning it has continued to grow and produce, still maintaining its original aims and objectives. Growth is often difficult to evaluate and measure, but using the financial yardstick, \$13,600,000 has been expended on new construction and alterations since 1947. During this same period it has increased its departmental budgets from \$1,936,000 to \$2,418,000. More important, it has been successful in providing facilities for teaching and research while attracting and retaining a distinguished faculty. It is beset with a severe neighborhood problem but a solution to that has already begun.

### Summary

The plan which includes three basic principles (1) a complete whole-time staff of true university status, (2) practically the complete utilization of paying patients for medical education and (3) the encompassment of the medical school within a university life science group, to me at least is one that possesses considerable merit.

### **La Escuela de Medicina de la Universidad de Chicago**

Aunque el plan para crear una nueva Escuela de Medicina en la Universidad de Chicago data de principios de este siglo debido a una serie de obstáculos (sobre todo la Primera Guerra Mundial), el proyecto no materializó sino hasta 1927, cuando se empezó a construir la Escuela en medio del *campus*. Tenía desde el principio facilidades clínicas completas. Desde entonces, la Escuela ha ido creciendo y desarrollándose según las normas establecidas por sus fundadores, aunque tuvo que luchar con nuevas dificultades (la Depresión de 1928 puso en peligro incluso su existencia) y con oposición por parte de la profesión médica de fuera de la Universidad. El autor del presente trabajo, que describe en detalle todas las fases de desarrollo de dicha institución, así como su organización interna y externa, cree que la sobrevivencia de ésta se debe sobre todo al hecho de que la Universidad es propietaria exclusiva de todas sus facilidades y hospitales, siendo así independiente de presiones externas, y, por otra parte, a que cuenta con una Facultad clínica del más alto nivel, determinada a no desviarse de las normas científicas y éticas establecidas por los que concibieron el plan de la Escuela.

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Separata de este artículo, en español, podrán obtenerse si son solicitadas por un minimum de 25 lectores.

## The Duke Private Diagnostic Clinic

WILBURT C. DAVISON

THE SALARY POLICY of the Duke University School of Medicine is intended to avoid as much as possible the criticisms and conflicting interests which may arise in the equally important obligations of teaching, research, and the care of ward and private patients. The duties of instruction, research and the care of ward patients are paramount and require no discussion, but private patients constitute one of the most serious problems in a teaching hospital. They are inevitable and their proper care can do much to make friends for the university. They must be treated and as well treated as the ward or any other patients. Otherwise, we are remiss in our duties and obligations as physicians, teachers and human beings. On the other hand, they demand a large and undeterminable part of teaching and research time.

Every doctor who teaches, needs to have some contact with patients who are responsible to him in the category of a private patient to his doctor, and he will have a better approach to all of his patients. Furthermore, all surgeons must do a certain amount of operating to stay in fit condition to operate and to teach surgery. If this is done on private patients, they are a profit to the hospital instead of a loss, and create funds which help

the hospital carry the deficit on the public ward patients.

In order to conserve time as well as to coordinate the diagnostic studies and to give better care for the complicated problems arising in the examination of private patients, the Private Diagnostic Clinic (PDC) was organized September 15, 1931. In the PDC, private patients receive better care in less than half the time formerly required when seen in the scattered offices of the various members of the faculty. The geographic full-time staff of the school of medicine does the professional work of the clinic, and their offices are centralized in the private patient wing of the hospital. The financial side of the clinic is handled by business managers. Part of the gross income of the clinic is used to carry the overhead of managers, secretaries, technicians and fellows: part is used to finance research work and to supplement the departmental budget, part reimburses the university for the rooms and services used, part goes to the university building fund, on a formula agreed upon jointly by all of the clinical departments. The remainder is divided among the members of the geographic full-time faculty in each department in proportion to the amount of work done by each individual, on a basis determined by that department.

The Private Diagnostic Clinic has acquired an enviable reputation for excellent service, and it has grown

Dr. Davison is dean of Duke University School of Medicine.

rapidly, indicating that private patients are on the increase and wish private rather than public outpatient care. Furthermore, more and more practicing physicians are now referring private patients to clinics because they need the services of an organized group which cannot be furnished by a solo consultant. During the past year, 74,700 visits were made to the PDC, and 108, 119 visits to the public outpatient clinic, a ratio of 1 private to 1.45 public patients. In addition, the PDC makes possible the organization of a clinical staff beyond that provided by university funds, and has furnished most of the money for the new research and clinic buildings.

#### **Division of salaries**

Few institutions have the endowment to carry the highest type of teaching staff on full-time salaries. If they have a PDC and one hundred private beds, the senior staff can maintain their operative and diagnostic experience and at the same time earn a large part of their income, thus enabling the institution to pay them smaller salaries and to use the funds from the endowment to give better financing to preclinical faculty and to pay for research, and to carry the cost of a number of young instructors who are preparing for a teaching career. Furthermore, the resident staff believes that one of the most useful periods of their training for practice is the time spent in assisting the geographic full-time faculty in the diagnosis and treatment of private patients. For the teaching of house staff as well as of students, private patients are as valuable as those on the wards.

The medical faculty is composed of three types, strictly fulltime members who receive no income from

private patients and the geographic full-time staff who have offices in the building and may treat as many private patients in the hospital and Private Diagnostic Clinic as they wish, and share in the distribution of their fees, so long as private practice does not interfere with their primary duties of instruction and research, a restriction which seems more satisfactory than a ceiling. The third group consists of part-time instructors who have offices in Durham and nearby towns, and who contribute very valuable assistance in outpatient teaching which has now become more important than ward instruction.

The strictly fulltime faculty receive salaries comparable to those of equal grades in similar institutions, and include all of the members of the departments of anatomy, biochemistry, physiology, pharmacology, pathology, bacteriology, preventive medicine, radiology, anesthesiology, administration, nursing and dietetics, and one-third of the faculty in medicine, neuropsychiatry, obstetrics, pediatrics and surgery. The members of the geographic full-time staff are paid smaller salaries but they share in the income derived from the private patients in their respective fields collected through the Private Diagnostic Clinic, as previously described.

#### **Complaints and solutions**

The criticisms raised against this plan are: the geographic full-time members of the staff may charge excessive fees, they may neglect their teaching and research responsibilities in order to gain additional income from private patients, and they may have total incomes greater than the comparable strictly fulltime faculty.

Complaints on the first ground are corrected by the heads of the depart-

ments concerned by means of a departmental assessment graduated like the income tax, or in occasional extreme cases by requesting and obtaining that individual's resignation. The second criticism is avoided by selecting only those individuals who want to teach and engage in research and by having a sufficiently large geographic full-time staff so that the private patient load and income are diluted. Actually the Private Diagnostic Clinic makes it possible to add and finance additional faculty members who like to treat patients and teach students rather than to spend all of their time in research. It is true that Duke has a high percentage of faculty who treat patients, but after all some one must see them. It also is true that the income from these patients supports many projects of other members of the faculty who prefer research to treating patients. The third criticism of greater income is answered by the increased amount of work done by the geographic full-time staff.

There are two alternatives to the present plan: (1) a completely full-time staff, as at the Hopkins, Chicago, Mayo Clinic and Ford Hospital, which was originally contemplated at Duke in 1927. It would have enabled the members of the faculty to have given their full time to the training of students and research. The number of private patients, judging by the experience at Hopkins, would have been small and their fees would have gone to the university. However, Dr. Harvey Cushing and Dr. Henry A. Christian of the Harvard Medical School with whom the policy was discussed, quoted Osler\* on the subject and recommended the present program, known as the Harvard or geographic full-time, on the grounds of the large budget needed for salaries under the Hopkins and Chicago full-

time program and the possibility that private patients might be treated perfunctorily if the profit motive were eliminated. They pointed out that a private patient, as well as a ward patient, should have the benefit of a university medical faculty. The second alternative would be the continuation of the present plan, but having the university collect and distribute the private patient income on a uniform basis as salaries. However, as the private income of some departments is higher than that of others, a uniform distribution might cause dissatisfaction among the geographic full-time staff because they might feel that they did not receive a share of the income commensurate with their work.

\*"A man who is not fond of students and who does not suffer their foibles gladly, misses the greatest zest in life; and the teacher who wraps himself in the cloak of his researches, and lives apart from the bright spirits of the coming generation, is very apt to find his garment a shirt of Nessus. What would the school (Johns Hopkins) have been if clinical men had not been active in the local and national societies? Would wholtime men have the same influence in the profession-at-large—I doubt it." (Sir William Osler, quoted by Donald Fleming in "The Full-Time Controversy," *J. Med. Educ.*, 30: 309 July 1955.

### **La Clínica Diagnóstica para pacientes privados en Duke University.**

Para resolver el problema de la práctica privada de los profesores de Medicina, la Escuela de Medicina de Duke University organizó en 1931 una "Private Diagnostic Clinic" (PDC). En ella, los pacientes están bien atendidos, y con gran ahorro de tiempo, porque los varios despachos de los profesores se hallan concentrados en un ala especial del Hospital. Un gerente se ocupa de la administración financiera de la Clínica. Los ingresos se emplean para pagar el personal administrativo y técnico y para reembolsar a la Universidad por las facilidades prestadas, así como para aumentar el fondo de construcciones de ésta. Lo que queda se divide entre los miembros de la Facultad que atienden a los pacientes de la Clínica. El número de éstos ha ido creciendo constantemente. Cada vez son más los médicos que envían sus pacientes a la Clínica para que reciban tratamientos que no pueden ofrecerse en los consultorios privados (durante el año

pasado, la *PDC* de Duke University atendió a 74,000 pacientes privados, en comparación con 108, 119 que fueron atendidos en la sección del Hospital subvencionada por el Estado). La *PDC* ha adquirido una reputación envidiable por su excelente servicio. Gracias a esta institución, la Escuela de Medicina puede mantener un personal médico del más alto nivel, ya que los ingresos de la Clínica sirven a los profesores como salario suplementario; y, por otra parte, los médicos residentes en el Hospital reciben valiosas experiencias al asistir a los miembros de la Facultad en el cuidado de los pacientes privados. Aunque se ha criticado dicho sistema alegándose el peligro de que los miembros de la Facultad cobren sumas exorbitantes a sus pacientes privados y descuiden, además, la enseñanza e investigación, el autor del presente trabajo no cree que ese peligro exista en realidad, y explica las medi-

das tomadas por los diferentes Departamentos de la Escuela a fin de contrarrestarlo. Resulta, por el contrario, que mediante los ingresos de la *PDC* son subvencionados algunos proyectos de investigación de ciertos miembros de la Facultad que prefieren la investigación a la enseñanza. El autor considera el sistema descrito preferible a otros sistemas, tales, por ejemplo, como los que están funcionando en las Universidades de Johns Hopkins, Chicago, y en la Mayo Clinic y Ford Hospital que tienen personal dedicado enteramente a las Clínicas privadas, mientras que los miembros de la Facultad sólo se ocupan de la enseñanza e investigación.

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Separatas de este artículo, en español, podrán obtenerse si son solicitadas por un mínimo de 25 lectores.

## Compensation of Clinical Faculty at the University of Virginia

THOMAS H. HUNTER

**T**HERE APPEAR to be nearly as many different formulae for remuneration of clinical faculties as there are medical schools. This is understandable when one considers the number of variables involved and especially the impact of differing local conditions upon the problem. Each plan must therefore be understood in the light of the environment in which it

developed. Such factors as size and source of budgetary support, numbers of full-time and part-time faculty, economic pressures from the local medical community, hospital facilities for private patients, research opportunities and research interest on the part of the faculty, all bear on the situation materially. Obviously there are many other less well defined influences such as the degree to which a spirit of coopera-

—Dr. Hunter is dean of the School of Medicine of the University of Virginia.



## *Symposium on Compensation of Clinical Faculty*

tion and mutual trust exists in the faculty and between it and the administration of the medical school and the teaching hospitals. One other aspect of the whole question of salaries paid in the medical school which varies from school to school concerns the relationship with other branches of the university. In those schools intimately connected with a university there is a restraint exerted by virtue of comparisons drawn with other university salaries which is probably healthy for all parties concerned. To the university comptroller the plight of the surgeon whose ceiling may be at \$25,000 gains a certain wanness when viewed against the backdrop of earnings of professors of English, politics and physics in the same university.

### **General features**

With this preamble I shall attempt to sketch the relevant features at the University of Virginia at Charlottesville. My apologies to the Virginians present for such explicitness, but I have found some auslanders who do not know where the university is, and even a few who confuse us with the Medical College in Richmond. Briefly, the school is of moderate size, 76 in an entering class; is adjacent to a 500 bed university hospital on the grounds of the university, in a town of 25,000 which has but one other hospital, a small private one, and a state tuberculosis sanatorium. There is only a handful of physicians in the community outside of the geographical full-time faculty of the school, a few of who do part-time teaching. The University Hospital is a referral center for the whole state, but especially the western half. The outpatient clinic has some 70,000 patients visits per year, and approximately an equal number of ambula-

tory private patients is seen in consultation by members of the full-time faculty. All clinical departments with the exception of ophthalmology and otolaryngology are on a geographical full-time basis, the total number of such faculty members being about 60. There are in addition about 10 positions in clinical departments on a strict full-time salary, most of which are supported by outside funds.

The university and its medical center are state owned and operated, but for various reasons not pertinent to this discussion, the extent of the financial support from the state has been far less than in many schools. Endowment funds are small, and hence the school has been heavily dependent on income from earnings for its operation and development. At the same time owing to the nature of the medical community, there is considerable demand for private consultation services of the faculty which also necessitates faculty involvement in private practice to an appreciable extent.

In this setting the plan for clinical faculty compensation which will be described has evolved. It is admittedly short of the ideal, but is designed to answer the needs of the school and the faculty in as fair a manner as possible until such a time as more substantial financial support can be obtained from state and private sources.

The geographical full-time faculty member receives a small basic salary from the state which provides from 20 per cent to 50 per cent of his total income. He is then allowed to earn up to a certain ceiling which is established by the department chairman in consultation with the dean. Ceilings are independent of academic rank to a large extent, and are arranged to take into account factors such as contributions to teaching and

research, length of service, amount of earnings, time devoted to administration and so forth. Ceilings increase by \$750 per year, except in unusual circumstances as determined by the department chairman and dean, up to \$20,000 per year at which point yearly increases stop. Major department heads receive 50 per cent of their income in basic salary and the remainder from departmental earnings; other departmental chairmen receive 25 per cent from the State. All fees are collected through the various departments and deposited in the bursar's office. At the end of the fiscal year, after all departmental operating expenses have been paid, any surplus earnings are distributed as follows: 40 per cent to a Fluid Research and Development Fund, 20 per cent to the Departmental Reserve Fund, 40 per cent to the members of the department in proportion to their earnings.

#### **Specific features**

Certain features of this plan deserve special comment. In the first place, through the Research and Development Fund, which is administered by a faculty committee and is not directly under state control, monies are recovered which may be used for innumerable vital purposes in a fashion similar to the National Fund for Medical Education. The contributions of this fund to the teaching and research in the school have been very great indeed. Secondly, and intimately related to my first point, the 40 per cent bonus to the clinician needs some explanation. Previously a plan was in operation for a time with rigid ceilings, which were lower than in many schools and with no contributions from surplus to the clinicians. It was soon discovered that in many quarters there

was little incentive to submit or collect bills, and minimal stimulus to keep departmental expenses under close scrutiny. The amount coming to the Research and Development Fund was very modest indeed, about \$10,000 per year. With the introduction of the 40 per cent surplus return to the clinicians there was a sharp change in the picture. Expenditures tightened up and the return to the Research and Development Fund increased six or seven fold. This happened, as nearly as I can tell, without any major change in the amount of time devoted to practice by the clinical faculty with few exceptions.

This plan has as a virtue considerable flexibility, but at the same time a high degree of control. No one is exploiting the medical school under it, nor is the school exploiting the faculty, except in so far as the basic lack of budgetary support dictates. It is inevitable, and also desirable, that within any clinical department there be people with varying degrees of interest in, and ability to do teaching, research, and patient care. Under this plan it is possible for faculty members to concentrate their efforts in varying degrees in these directions and yet all contribute to the total picture.

The plan has been in operation now for over three years and on the whole is working well. I suspect that one of the major reasons for this is the strong spirit of cooperation in the small, close-knit faculty. The great majority are genuinely interested in the academic life and are willing to make some personal sacrifices in order to further the interests of the school.

#### ***El sistema de compensación monetaria para los profesores de la Facultad Clínica en la Universidad de Virginia.***

En los Estados Unidos, hay casi tantos siste-

mas de remuneración por los servicios clínicos de los profesores como Escuelas de Medicina. En la Universidad de Virginia (en Charlottesville, una ciudad de 25,000 habitantes, que tiene sólo un pequeño hospital privado y un sanatorio del Estado para tuberculosos) la situación es la siguiente: La Universidad y su centro médico pertenecen al Estado de Virginia, pero debido a varias circunstancias, la subvención de ese Estado a la Escuela de Medicina ha sido y es menor de lo que suele ser en otras instituciones universitarias, y por ello ésta se sostiene, en gran medida, con sus propios ingresos. Al mismo tiempo, por parte de la población, existe una gran demanda de servicios médicos privados, los cuales ocupan buena parte del tiempo del personal médico de la Escuela. Estos reciben del Estado un

salario básico relativamente pequeño, el cual es permitido se suplemente por medio de la práctica privada hasta cierto tope fijado por el jefe de cada Departamento, de acuerdo con el Decano. Los topes no dependen del rango académico, sino de factores tales como la contribución de cada profesor a la enseñanza e investigación; sus años de servicio y el salario básico que éste percibe. El presente trabajo describe detalladamente cómo funciona tal sistema en la Universidad de Virginia, el cual está en vigor desde hace tres años. En general ha dado resultados satisfactorios.

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Separatas de este artículo, en español, podrán obtenerse si son solicitados por un minimum de 25 lectores.

## **The Iowa College of Medicine Plan for Private Practice**

**NORMAN B. NELSON**

**A** PLAN FOR PRIVATE practice in the College of Medicine of the State University of Iowa has been in effect since 1947. This plan has been successful with respect to the faculty of the college, the administration and the medical profession of the state.

It is recognized that problems of private practice in medical colleges vary with the location of the college, character of the faculties, and state laws. It is necessary therefore to give a background or setting for the Iowa plan. Also it must be realized that this plan may not necessarily be applicable in all its aspects to the other colleges of medicine.

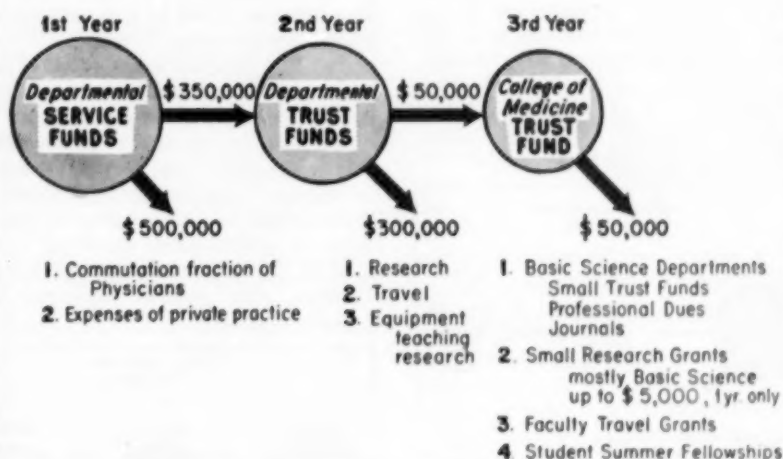
The College of Medicine of the State University of Iowa is the only medical school in Iowa. It is located

in Iowa City, a community of 28,000 people. Being located in a town of this size the college is obviously committed to a full time faculty. We have our own teaching hospital of almost 1,000 beds, of which 128 are private and the rest state supported. In many ways the State University of Iowa College of Medicine is the consultation center for the state of Iowa. A fleet of 22 ambulances transports patients from all over the state to the teaching hospital, which is maintained by state appropriation. Approximately 95 per cent of the private patients and with rare exceptions, all of the non-private patients, are referred to our staff by private practitioners.

When the plan was first introduced in 1947, there was considerable opposition to it by the State Medical Society, due largely to a lack of

Dr. Nelson is dean of the State University of Iowa College of Medicine.

## Fiscal Program IOWA PLAN



understanding. The College of Medicine was accused of embarking on a "socialistic" plan. At the present time this opposition has almost completely disappeared, and a cordial relationship exists. Minor complaints are still voiced, but most of these, have to do with the occasional failure on the part of a member of the faculty to give a prompt report on a patient, or to the difficulty a doctor may have in getting a patient accepted at the University Hospital for consultation. This latter problem is due to a limitation of beds for private practice. Our major problem has always been to keep the number of private in-patients adjusted to the 128 available beds.

Perhaps the most important aspect of the Iowa plan is that it was worked out by the faculty. The faculty feels that it is its own plan. As a result, a statesmanlike attitude has been adopted by members of the faculty towards the plan. The overall welfare of the institution is invariably put ahead of personal gain. This has

taken many hours of study and discussion to come to a real understanding.

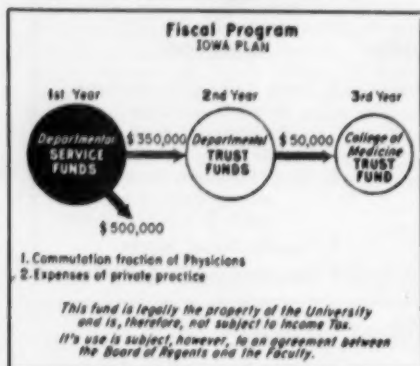
### PRIVATE PRACTICE DOLLARS



1. Patient - Doctor relationship is the same as in private practice:
  - a. Fee is determined by the doctor
  - b. Fee is collected by the secretary or by the Business Manager of Plan
2. Money collected is held in each department for 1 year in a separate fund known as the *Departmental Service Fund*

Of special significance is the fact that the patient-physician relationships are the same as in any ordinary practice. The patient is referred by an outside doctor. Our physicians

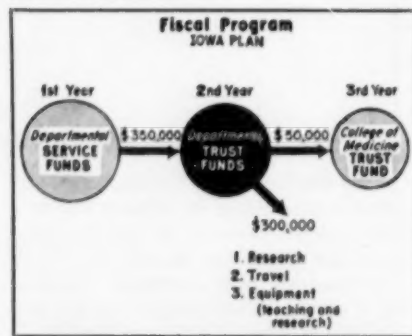
determine what is to be done, and the fee to be charged. The fee may be either collected in the office of the department, or by the office of the manager of the Medical Service Plan. This manager is hired by, and is responsible to the dean and the faculty advisory committee called the "Compensation Committee."



As money is collected it is deposited in a first level fund, known as the "Departmental Service Fund." At this point the money becomes the property of the university, subject however to agreement between the faculty and the university concerning its use. This is necessary because of income tax laws. From this first level fund the supplemental salary or commutation fraction of the clinical faculty is paid. The university pays each faculty member his basic salary, which comes from the state appropriation, plus his supplemental salary from the service fund as a single payment. Income tax is withheld from this total. The compensation of a full professor is therefore his basic salary from the state appropriation plus an equal amount from the service fund. An associate professor receives his basic salary plus 75 to 100 per cent. At the time the plan was instituted, assistant, associate and full professors were paid a basic salary

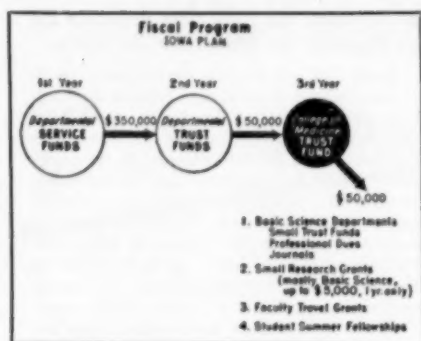
plus 50, 75 and 100 per cent respectively. As time went on this appeared to place too much of a premium on promotion. This has since been liberalized, and subject to negotiation by the departmental chairman, the dean, and the executive committee.

In addition to the supplemental salary items all expenses of private practice are paid for from the Service Fund. These include secretarial help, dues in professional societies, (including the American Medical Association), and general expenses of private practice.



At the end of the fiscal year, funds not expended at the Service Fund level become Departmental Trust Funds. These funds are used to finance departmental research, travel, and special teaching needs. The contribution of the Departmental Trust Funds, an expenditure of almost \$300,000, to the research activities of the various departments is truly significant. A potential danger should be mentioned. There is some tendency in certain departments to assume obligations of such size that they become a burden and difficult to maintain.

At the beginning of each fiscal year departmental chairmen meet and allocate for their departmental trust funds a voluntary contribution to the College of Medicine Trust Fund.



The importance of this trust fund lies in the fact that it constitutes a recognition on the part of the clinical departments of the importance of the preclinical departments to the college. From the College of Medicine Trust Fund are established small departmental trusts funds for all of the basic science departments. In addition, an amount is set up to pay professional dues and scientific journal subscriptions for all members of the basic science departments. Each year a member of the faculty is awarded a traveling fellowship from his fund. This fund also provides one post-doctoral fellowship and eleven summer student fellowships. The most important function of the College of Medicine Trust Fund, however, is to subsidize the starting of new research projects which have not progressed to a point where outside funds can be obtained. Grants up to \$5,000 have been made. These grants are made,

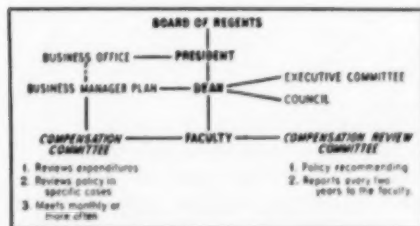
however, for one year only. From time to time emergency supplementation of support for existing research projects is made.

### Administration

A faculty elected Compensation Committee meets monthly to review expenditures made from departmental trust funds and the College of Medicine Trust Fund. A faculty elected compensation review committee reports every two years. This committee recommends on major policy matters to the dean and university administration. The compensation committee in effect operates under policies recommended by the Compensation Review Committee and accepted by the university administration and the board of regents. The dean, the president, and the board of regents must approve major changes in the plan.

The total income from private practice during the fiscal year 1953-54 was a little over \$850,000. Of this amount, approximately \$400,000 provided the supplemental fraction for salaries of faculty members, and approximately \$100,000 was used to defray the expense of private practice including the business office of the plan, university overhead and departmental expenses of private practice. About \$50,000 was allocated to the College of Medicine Trust Fund from the previous fiscal year's Trust Funds, and approximately \$300,000 was expended by individual departments from their departmental trust funds, largely for research.

One aspect of the plan that should be pointed out is that it is entirely voluntary. It is decided at the departmental level whether all of the clinical members of the department will or will not participate. At the present time all of the clinical departments,





including anesthesiology, radiology, and pathology, participate in the plan. The departments of bacteriology and clinical chemistry participate in a very modest way in funds from these fees from outside consultation or examination of specimens. Having decided upon the plan in a department, all members participate the same regardless of their individual income from private practice. There has been considerable variation in the income from private practice of the various members. As far as I know, there has been no undue pressure put on any faculty member to increase his contribution to the income from practice.

The plan described has been working very well at the State University of Iowa. By far the most important part of this plan is the fact that it was devised by the faculty and is periodically reviewed by the faculty. Even though the financial aspects of the plan are administered by the business office, and the entire plan is responsible to the dean's office, decisions are made largely by a faculty committee. Also all changes of major policy occur on the recommendation of the faculty after study by a faculty compensation review committee. This is truly a faculty plan.

I think it unique that the university administration and the board of regents accepted the original plan of the faculty without changing a word. Twice the faculty have amended the plan and these amendments were accepted in full.

### **El Sistema de Práctica Privada en la Escuela de Medicina de Iowa.**

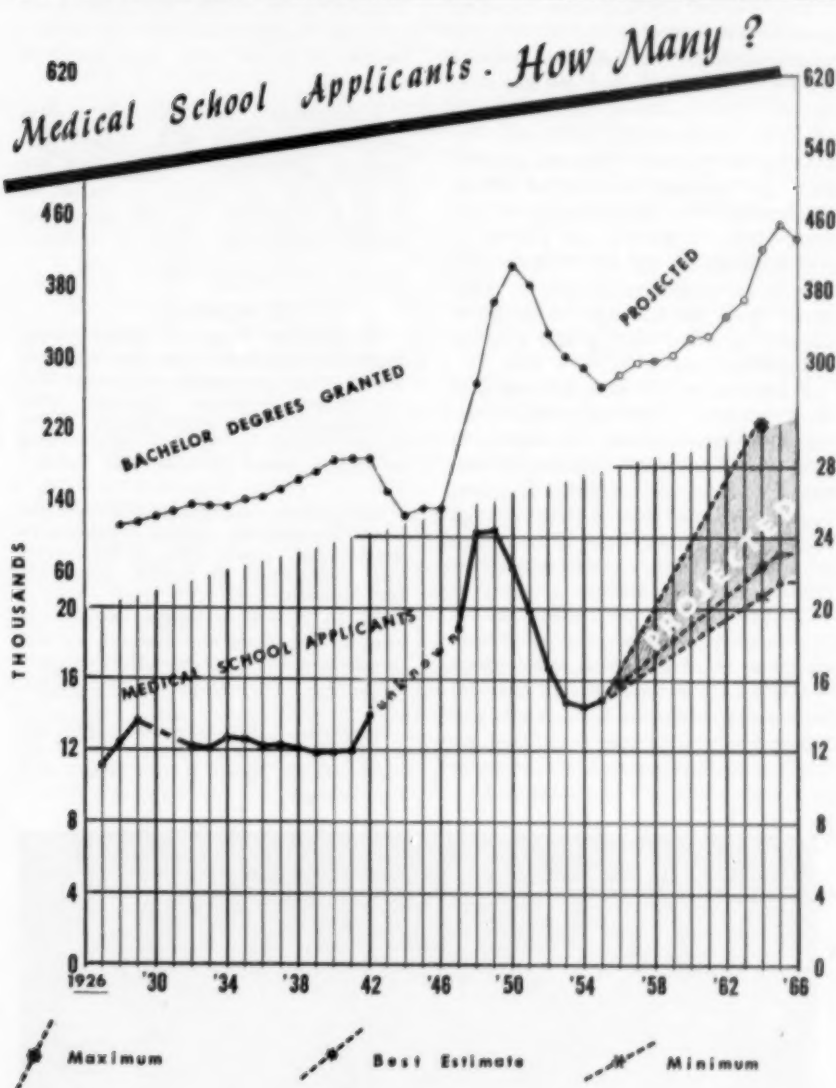
Desde 1947, la Escuela de Medicina de la Universidad de Iowa (única Escuela de Medicina en ese Estado, situada en Iowa City, ciudad de 28,000 habitantes) ha resuelto el problema de la práctica privada de los profesores en la forma siguiente: Los pacientes son enviados al Hospital universitario (de las 1,000 camas de éste, 128 están disponibles para los pacientes privados) por doctores de fuera de la Universidad. Los miembros de la Facultad de Medicina determinan qué tratamientos han de recibir esos pacientes y cuánto deben pagar. El dinero así obtenido se deposita en el "Departmental Service Fund", y se convierte en propiedad de la Universidad, aunque queda sujeto su empleo a un acuerdo entre dicha Universidad y los miembros de la Facultad de Medicina. De este Fondo se pagan los salarios suplementarios de los profesores clínicos, así como todos los gastos administrativos de la Clínica privada. Al terminar el año fiscal, el superávit del "Departmental Service Fund" pasa a los "Departmental Trust Funds", los cuales financian investigaciones, viajes y necesidades especiales de la enseñanza en los Departamentos de Medicina. El ingreso total de la Clínica privada durante 1953-54 excedió de \$850,000. De esta suma, la mitad aproximadamente, sirvió para proveer los salarios suplementarios de los profesores y \$100,000 para cubrir los gastos administrativos.

Cuando el sistema descrito fué introducido en 1947 (creado y organizado enteramente por los profesores de Medicina) hubo fuerte oposición por parte de la "State Medical Society", que acusó a la Escuela de Medicina de tendencias "socialistas". Hoy día, esta oposición ha desaparecido casi completamente. Algunas quejas que aun se oyen se refieren, por lo general, a ocasionales deficiencias del Servicio, debidas, a menudo, a la escasez de camas disponibles para los pacientes privados.

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# Editorials and Comments



**A**N INCREASING NUMBER of persons will seek admission to American medical colleges during the next decade. The predictable increase of the age-eligible population assures an

increase even though other factors may decrease the relative attractiveness of a medical education. The extent of the future increases can be predicted only within a progressively

widening range, as shown in the shaded area of Figure 1 on the preceding page.

The charted prediction is based on present estimates of the number of first professional or bachelor degrees which will be granted in the next decade. It is assumed that there is a positive relationship between the number of bachelor degrees granted and the number of medical school applicants. The relationship of recent years is shown in Figure 2, which shows, in percent, the number of medical school applicants as compared with the number of bachelor degrees granted during the preceding college year.

From Figure 2 it may be seen that the relative attractiveness of a medical education was at its lowest in 1953 (4.81 per cent) starting to rise again in 1954 and in 1955. It seems fair to assume that it will not go below this in the next decade and thus the minimum expectation for 1964 is 20,500 applicants.

In 1929 the ratio of medical school applicants to bachelor degree graduates was 11.70 per cent, the highest in the last three decades. The general trend since 1929 has been down and it seems safe to assume that this high ratio cannot be regained. The average ratio since 1928 is 7.42 per cent. This

is assumed to be the maximum expectation. This ratio is approximately what it was in 1935 and again in 1940. Projecting to 1964, the maximum number of applicants that can be expected is 31,700, the chart limit of Figure 1.

A reasonable "best estimate" is that medical education will attract the average proportion of the last six years (5.10 per cent), a period of relative stability. In this case the medical schools will have to consider almost 22,000 applicants in 1964.

#### REFERENCES:

Estimates of college graduates are by Toby Oxtoby, Robert Mugge and Dall Woelfe of the Commission on Human Resources and Advanced Training, "Enrollment and Graduation Trends: From Grade School to Ph.D.," *School and Society*, October 11, 1952, Vol. 76, No. 173.

Actual figures on college graduates are from "Biennial Surveys of Education in the United States," Office of Education, U.S. Department of Health, Education and Welfare.

Actual figures on medical school applicants are from the *Bulletin of the Association of American Medical Colleges* and The Journal of MEDICAL EDUCATION.

Estimates of medical school applicants are by Dr. Dean F. Smiley, J. Edwin Foster, Ed.D., Helen H. Gee, Ph.D. and Eric Klinger.

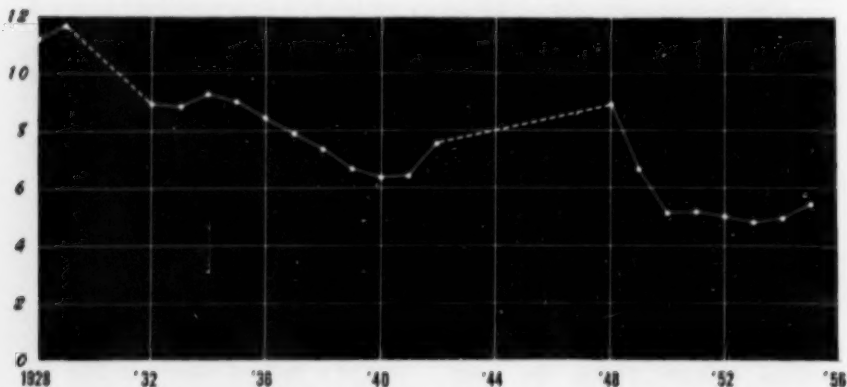


Figure 2. Proportion of medical school applicants to the number of bachelor degree graduates of preceding college year.

## Forecasting the Number of Applicants for Medicine

**T**HERE ARE many reasons why it is important to know how many students will apply for admission to medical school in the years immediately ahead. Regional planning groups, states without state medical schools, and universities without medical schools, must take the probable number of applicants for medicine into consideration in determining the relative urgency of a medical school development program. In drawing up federal legislation designed to assist in the construction of new and the remodeling of old medical school buildings, the pressure of applicants for admission must be considered in arriving at estimates of the tax monies needed. In planning for the training of adequate numbers of teachers in our medical schools it is essential that we forecast as well as we can what the total number of students applying for admission to medical school will be in the years ahead.

The ratio between the bachelor degrees granted in a given college year and the number of applicants for admission to medical school the following college year has been determined as far back as 1925. With the range of the past maximum and minimum ratio in mind and with the forecasts before us of the increasing number of bachelor degrees to be granted in the years ahead it is possible to project with some degree of accuracy what the number of applicants for our medical schools will be in the 10 years immediately ahead.

By very conservative estimates it seems likely that by 1966 the number of applicants for admission to medical school will have risen from the present total of 14,538 to 24,000. Some evidence that this is not a fantastic figure is provided by the fact that under the unusual conditions of 1948 and 1949 the number of medical college applicants totalled 24,242 and 24,434 respectively. If there is a repetition of the conditions of the postwar period (a large foot-loose, age-eligible population, with funds available for educational purposes) the number of applicants might conceivably reach 32,000. Graphs showing these projections have been prepared by J. Edwin Forster, Ed.D., of the Association staff and your attention is invited to them on page 493-4 of this issue. "To be forewarned is to be forearmed." D.F.S.

## Our Readers Write

### Letter from Finland

*Dear Editor:*

Thanking you for your letter asking me to set forth some aspects of medical education today. I have carefully considered the matter, and my possibilities to write a suitable summary of all the different aspects.

The first and most important demand must be that the quality of the education must not fall off because of the increasing quantity of students and the increasing need of doctors. The increasing number of students brings forth youngsters who have not grown up in homes where scientific thinking and search for truth have been essential ingredients in education. If a medical school is developed separately without close connection to

the other faculties of a complete university, the increasing velocity of technical knowledge and possibilities will urge the students to forget the synthesis of thinking. The thought of doctors with great technical skill and profound desire to help suffering human beings without a deeper knowledge of humanity, makes me tremble.

Are terms of psychoanalysis as id and superego not very close to the ideas of the higher religions as original sin and conscience? The possibilities in a complete university to discuss the problems of human life with people from different fields will always widen the aspect and understanding of the teachers as well as of the students.

I would like to add some words concerning the selection of students to medical schools. Here in Finland, as in many other countries, the marks in high school and at matriculation are important, combined with a quick comprehension and ability to give vent to what one has learned. This gives preference to a certain type of students which does not always give the best selection. As doctors we know that fast growing and early maturing children seldom reach the maximum height as grown up people. The same phenomenon is well known in the development of intelligence and creative ability, as your Abraham Lincoln so prominently proved. One creating man is more important than a mass of mimickers.

If we follow this train of thought we must divide the students in two groups, one trained for the development of medicine and research work, the other for practicing medicine in the field, of course with possibilities for interchange. *Very sincerely yours, C. E. Raiha, Children's Hospital, Helsinki, Finland*

# NEWS DIGEST

## **Ford Foundation Committee**

A special committee to recommend a plan for distribution of the \$90,000,000 awarded to the nation's privately-supported medical schools, has been announced by the Ford Foundation. Lee DuBridge, president of the California Institute of Technology, will serve as chairman of the medical school grants advisory committee. Dr. Carlyle Jacobsen, executive dean for medical education for the State University of New York, will be vice chairman. Members of the committee are: Dr. George Packer Berry, dean of Harvard Medical School; Detlev W. Bronk, president of the Rockefeller Institute; Leonard Carmichael, Secretary of the Smithsonian Institution; Dr. Ward Darley, president of the University of Colorado; Dr. John Holmes Dingle, professor in the School of Medicine, Western Reserve University; Leon Falk, Jr. chairman of the board of the Maurice and Laura Falk Foundation and director of the National Steel Corporation; A. Crawford Greene, attorney of San Francisco, California; Robert M. Hanes, president of the Wachovia Bank and Trust Co., Winston-Salem, N. Carolina; Mrs. Albert D. Lasker, president Albert and Mary Lasker Foundation; Dr. Robert Frederick Loeb, professor of medicine, Columbia University; William F. Loomis, director of the Loomis Laboratory; Dr. Franklin David Murphy, chancellor of the University of Kansas; and Robert Winship Woodruff, chairman of the finance committee of the Coca-Cola Company.

Allocations to individual institutions will be determined by the trus-

tees after the advisory committee has completed its report.

## **WMA Rules on Medical Ethics And Laws**

The 26th Council Session of the World Medical Association met in Cologne, Germany April 29-May 5 and adopted two principles relative to medical ethics and medical law as a result of its efforts in a joint committee studying the international aspects of these two problems. It was decided that the same ethical code should govern the doctor in both peace and war, and that it is the function of the WMA to formulate any code of international medical law and not the function of laymen even though they be lawyers.

Dr. José A. Bustamante of Cuba, chairman of the Council of the Pan American Medical Confederation was named president elect. Dr. Hector Rodriguez of Chile, secretary of the Chile Medical Association, was named a council member.

## **Ophthalmology Fellowships**

A plan calling for 18 fellowships for residents in ophthalmology has been sponsored by the Guild of Prescription Opticians. Designed to provide financial help throughout a three-year residency period six fellowships each worth \$1,800 (\$600 a year for three years, payable monthly) will be awarded each year beginning with the current year. Awards will be made on a regional basis, one award to be made annually in each of six geographical areas of the United States and Canada. Applications may be obtained from the Guild headquarters, 110 E. 23rd St., New York 10, N.Y.



### **New Grants by Commonwealth Fund**

Unrestricted grants of \$4,850,000 to seven university medical schools have been announced by the Commonwealth Fund. These awards may be used in whatever way the schools consider most effective to improve their program of medical education.

This brings to a total of \$12,600,000 the amount of such gifts made by the Fund since November 1955 with the purpose of strengthening the medical schools of the country. This is in addition to the sums expended for specific medical education projects during the fiscal year 1955-56. Medical schools receiving these latest grants are The Albany Medical College, George Washington University School of Medicine, University of Pennsylvania School of Medicine, Boston University School of Medicine, University of Rochester School of Medicine and Dentistry, the Johns Hopkins University School of Medicine and Stanford University School of Medicine.

### **College of Physicians Names Honorary Fellow**

Edward R. Loveland, Philadelphia, Pa., for more than 30 years executive secretary of the American College of Physicians, has been made an Honorary Fellow of the College. He is the only layman ever so honored.

### **National Society Renamed**

The American Academy of Obstetrics and Gynecology has been renamed The American College of Obstetricians and Gynecologists, Dr. Ralph E. Campbell, president of the college has announced. The new name became official on May 11 following action by the executive board to carry out the wishes of the members on the matter.

### **Menninger Foundation Receives \$150,000 Grant**

The Alfred P. Sloan Foundation, Inc. has made a grant of \$150,000 to the Menninger Foundation, Topeka, Kan. in support of the Menninger School of Psychiatry. This is the first sizable contribution the Foundation has made in the field of mental health. The trustees have explained that in deciding that there was a great need for funds in this broad area, especially for research, their first major grant would be well given for the support of the Menninger education and training program. The Menninger School of Psychiatry currently has 500 physicians enrolled in its three- to five year training program.

### **AMA Meeting Features Progress Report**

Highlight of the AMA convention held in Chicago June 11-15, was the "March of Medicine" documentary TV program, a report on the progress of medical science. The series of exhibition booths at Navy Pier were used to help the doctors demonstrate the latest techniques and discoveries in their respective fields. Entitled "Progress Report—1956" and sponsored by Smith, Kline and French Laboratories in cooperation with the AMA, the program was given June 17th on the NBC-TV network.

Featured was a report on advances made in cataract surgery by Dr. Harold Scheie, Secretary of the Section on Ophthalmology of the American Medical Association, and a summary of the findings regarding the American public's attitude toward medical facilities and family doctors. The latter findings indicated that while most people endorse the idea of an annual physical check-up, only 20% of the group interviewed had one every year.

## College Briefs

### Albany

A fund for leukemia research totaling \$26,000 has been established in the name of Miss Rachel Clapp, who died of leukemia in the Albany Hospital on April 7, 1956. The award will be known as the Rachel Clapp Hematologic Research Fund and will be the principal and accrued income of a trust fund established for Miss Clapp during her lifetime by a close friend.

Disbursement of the funds will be according to the judgment of the head of the subdepartment of hematology.

### Chicago Medical

Dr. M. WHARTON YOUNG, professor of anatomy at Howard University Medical School, is visiting professor of neuroanatomy for the summer quarter. He is teaching the sophomore class which, under the teaching plan in operation, remains in school for additional training time each summer. Dr. Young is a Diplomate of the National Medical Board.

### Buffalo

Grants-in-aid of \$65,719 have been made by the American Cancer Society to seven scientists on the staffs of Roswell Park Memorial Institute and the school. This is part of a record \$2,643,493 grants-in-aid made by the society as the first phase of a cancer research program expected to reach \$7,500,000 at the end of the current fiscal year.

### Georgetown

Dr. HUGH H. HUSSEY has been appointed professor of preventive medicine and director of the department of medicine. Dr. Hussey is an alumnus and has been a member of the medical faculty for over 20 years, teaching internal medicine.

### Hahnemann

Dr. ARTHUR M. WASE, assistant professor of biochemistry has been awarded a Fulbright scholarship to lecture on the medical uses of atomic energy at the University of Brussels in Belgium. He will lecture for one year beginning October first.

### Harvard

Dr. JOHN M. KINNEY, teaching fellow in surgery and senior assistant resident surgeon at the Peter Bent Brigham Hospital, has received the second annual Mead Johnson Award for graduate training in surgery. The award, made through the scholarships committee of the American College of Surgeons, is given by the Mead Johnson Company and provides \$3,000 annually for a three-year period to aid the recipient to develop his potentials in his chosen field. Dr. Kinney's interest is in the investigation of intermediary (carbohydrate) metabolism and the expenditure of energy by surgical patients.

A pioneer in exploring the life processes of cells, Dr. JOSEPH C. AUB, professor of research medicine, chairman of the department of medicine and director of the school's laboratories in the Collis P. Huntington Memorial Hospital, is retiring to become professor of research medicine, emeritus. Dr. HARRY C. SOLOMON will also retire this summer as professor of psychiatry, becoming professor emeritus.

### Jefferson

Dr. JOHN H. GIBBON JR., has advanced to head the department of surgery and to the Samuel D. Gross chair of surgery. A professor of surgery and director of surgical research, on the faculty since 1946, Dr. Gibbon pioneered the development of the



Nebraska's recently opened Psychiatric Institute has what is believed to be the first closed circuit television system for observation and teaching. Nurse shown here at the nursing station monitor is charting the activities of a patient. The system will be used to show advanced students experts actually treating mental illness.

heart-lung machine used to take over functions of these organs during heart operations.

#### **Meharry**

The main event of the commencement period on June 5th was a symposium on recent advances in therapy, in the fields of medicine, dentistry and nursing. The meetings were attended by physicians and dentists throughout the area and a large number of alumni. Principal speakers were: Dr. F. C. ROBBINS, Nobel Prize laureate of 1954 who spoke on "Recent Advances in Therapy in Pediatrics;" Dr. T. K. LAWLESS, dermatologist, whose subject was "The Newer Trends in Dermatology." ROBERT A. GOOD, 1954 winner of the Mead Johnson Award and presently professor of pediatrics at the University of Minnesota, who subject was "Diagnosis and Therapy of Diseases Featured by Disturbances in Gamma Globulin Metabolism." Dr. LESTER R. DRAGSTEDT, professor of surgery at the University of Chicago Medical School, who spoke on "Some New Concepts of the Etiology of Gas-

tric and Duodenal Ulcers;" Dr. MAXWELL FINLAND, Harvard Medical School, who discussed "Recent Advances in the Treatment of Infectious Diseases."

#### **Miami**

The first Inter-American Conference on Occupational Medicine and Toxicology will be held in Miami September 3-7, jointly sponsored with the University of Havana School of Medicine. The official language of the program will be Spanish and includes at this time speakers from Venezuela, Mexico, Peru, Colombia, Chile, Puerto Rico, Cuba and the United States.

#### **Michigan**

A recent grant of \$178,750 from the Herbert H. and Grace A. Dow Foundation has provided the funds necessary for applying color television to the teaching of medical science on the graduate and undergraduate level. First plans call for the establishment of a color compatible television system in the university hospital. Equipment will include a

regular portable black and white camera, a film camera which will project color slides and films to class rooms, control equipment and a special color camera which will be mounted over the operating table. The primary purpose is to telecast on a closed circuit, but the unit is color compatible and will be able, when the occasion arises, to broadcast nationwide through local stations in color or black and white. It will also be possible for other hospitals throughout the state to purchase special closed circuit receiving apparatus and see operations or other activities on the hospital television circuit. It is expected that the color television system in the hospital will be in operation within the next 12 months.

Furthermore, in the plans now being made for construction of an \$8,500,000 medical science building, each unit in the building will be equipped with electrical conduits which will be used for television and replace the amphitheaters usually found in medical schools.

### **Mississippi**

Dr. J. ROBERT SNAVELY has been appointed assistant dean. Dr. Snavely is professor and chairman of the department of medicine and will also continue in that capacity.

### **New York Med. Coll.**

Dr. FELIX MARTI-IBANEZ, medical editor and historian, has been appointed director of a newly-created history of medicine department. He will also serve as professor of the history of medicine. A museum and library of medical history and historical research is planned as part of the program.

### **North Carolina**

Dr. W. REECE BERRYHILL, dean, received an honorary degree at Davidson College Commencement Exercises, May 28, of doctor of science. The degree was presented by Davidson President Dr. JOHN R. CUNNINGHAM.

### **Northwestern**

Dr. LOYAL DAVIS, chairman of the department of surgery, has been elected president of the American Surgical Association. The election took place at the association's annual meeting early in May.

The U. S. Public Health Service has awarded a \$14,000 grant to the dental school for research in cleft lip and palate. The grant goes to Dr. T. M. GRABER, director of research of the Cleft Lip and Palate Institute on the Chicago campus.

### **NYU-Bellevue**

The George Miller MacKee Chair of Dermatology and Syphilology in honor of the late Dr. MacKee has been officially dedicated. Dr. MARION B. SULZBERGER is the first incumbent of the chair. Dr. Sulzberger is director of dermatology at the New York Skin and Cancer Unit, a division of the university hospital, and professor and chairman of the department of dermatology and syphilology at the post-graduate school and the college of medicine. Provisions for the chair were made in Dr. MacKee's will.

### **Oregon**

Dr. HARRY J. SEARS, head of the department of bacteriology, and professor, retired this June. He will continue his research at the school on an emeritus basis. The new department head is Dr. ARTHUR W. FRISCH, professor of bacteriology. Dr. Frisch, a graduate of the University of Wisconsin, has been a faculty member since 1946.

### **SUNY—Brooklyn**

Dr. JOSEPH K. HILL, assistant to the dean in Syracuse, has been named executive secretary of the Medical Center in Brooklyn. Dr. Hill took over his duties June 1. His administrative responsibilities cover all matters not directly related to the teaching departments. He will also hold the title of associate professor of medical administration.

The regents of the American College of Surgeons have awarded their

third research scholarship to Dr. SIGMUND A. WESOLOWSKI. Dr. Wesolowski is an assistant instructor in surgery and a resident in surgery at Kings County Hospital. The scholarship, established in 1952 to support promising young surgeons who are interested in academic surgery and to promote surgical research, begins on July 1 and at that time Dr. Wesolowski will be promoted to instructor. The scholarship pays the recipient \$20,000 over three years.

#### **Seton Hall**

Dr. HAROLD J. JEGHERS has been appointed professor of medicine and director of the department of medicine, effective August 1. Dr. Jeghers is presently professor and director of the department of medicine at Georgetown University School of Medicine, and physician-in-chief of the Georgetown University Hospital and director of the Georgetown University division of medicine, Washington D.C., General Hospital.

#### **Temple**

The outpatient, operating room and X-ray units of the 10 million dollar medical center were opened in June, and are expected to be functioning by September.

A grant of \$166,466.39 has been received from the Fels Research Institute for the 1956-57 fiscal year. The money will support studies under the direction of Dr. HARRY SHAY in the fields of cancer research and gastroenterology.

Dr. EARL H. SPAULDING, professor and head of the department of microbiology has been appointed chairman of the advisory committee of certification of the newly organized American Academy of Microbiology.

#### **U. of Virginia**

Dr. ROBERT D. WRIGHT, professor and chairman of the department of social and environmental medicine, will return to his post as a medical director of the U.S. Public Health Service this July. He will remain as clinical professor. Dr. Wright will continue as chairman of his depart-

ment until a permanent chairman is named. In his new position Dr. Wright will be General Health Service Consultant for Region III of the Department of Health, Education and Welfare with headquarters in Charlottesville, Virginia.

A \$5,975,000 appropriation for construction and equipment of a university hospital has been passed by the state General Assembly. Plans include equipment of a multi-story hospital housing 360 general beds, an X-ray building, and a separate 50-bed surgical tuberculosis unit.

#### **Toronto**

Dr. H. CULLUMBINE, superintendent of the medical division of the Chemical Defense Experimental Establishment at Porton, England, became professor and head of the department of pharmacology on July 1.

#### **Washington U., St. Louis**

Dedication ceremonies for the new \$130,000 tumor clinic in the Barnes Hospital Medical Center were held recently. Dr. CARL A. MOYER, Bixby professor of surgery and head of the department spoke on "The Role of the Tumor Clinic in the Medical School and in the Community."



Dean Robert C. Lewis (left) and Dr. Ernest H. Brunquist (right) of the University of Colorado are retiring this month. Their combined careers total more than 73 years of faculty service. Dean Lewis taught physiology and biochemistry, was the head of the department of biochemistry for 20 years and became dean of the school of medicine in 1949. Dr. Brunquist is retiring as associate professor of physiology.

# Audiovisual News

## The Dermatogram, Xerography, and Polarization Photomicrography

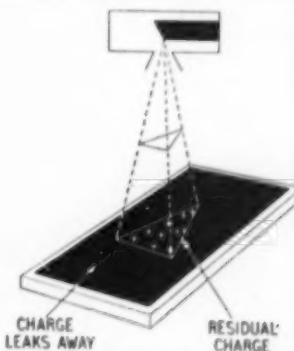
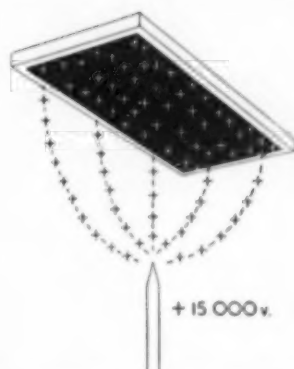
Three special techniques of graphic or photographic recording are fully described and illustrated in the April issue of *Medical and Biological Illustration* published by the British Medical Journal. W. Schoenfeld of the University Clinic for Skin Diseases at Heidelberg handles an article entitled "Technique, Application & Evaluation of the Dermatogram in Dermatology." R. W. Stanford and R. D. Moore of Guy's Hospital Medical School in London discuss "Xerography with Special Reference to Xeroradiography" and Joachim-Herman Scharf of the Anatomical Institute of the Johannes Gutenberg University at Mainz has an article entitled "Observations on Methods of Polarization Photomicrography."

Interested readers unable to obtain a copy locally should write the Publishing Manager, B.M.A. House, Tavistock Square, London W.C.1. The price of a single copy is 12s. 6d. plus postage.

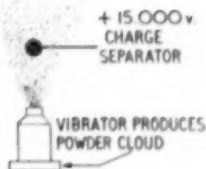
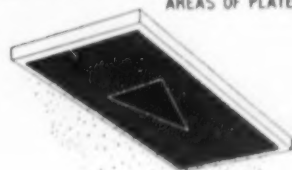
**SEQUENCE OF OPERATIONS** in xeroradiography: (a) charging the plate by exposure to a corona discharge for five to ten seconds. (b) loss of charge due to the conductivity of the selenium when irradiated, leaving a residual electrostatic image, and (c) development of the image by exposure of the plate to charged powder particles for about 30 sec. The plate is protected from ambient light throughout.

### The Secretarial Glance

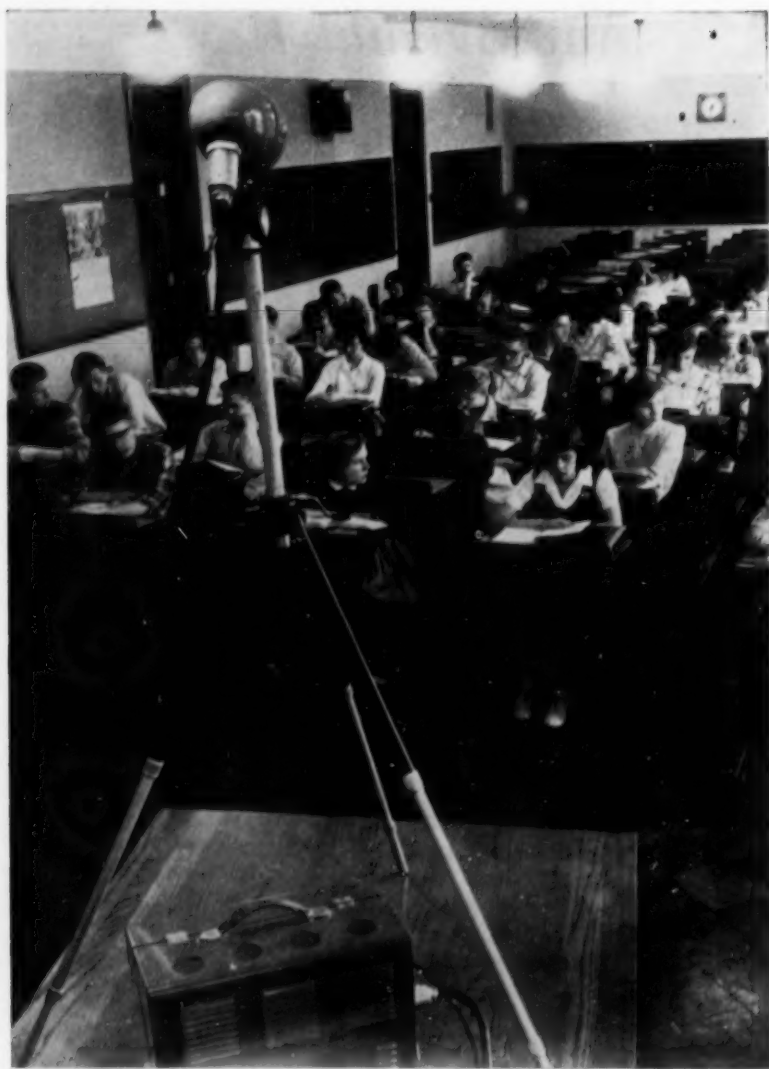
The secretaries on the first floor of the New London (Wisconsin) High School take turns glancing into the school's study hall on the second floor. They do it by means of a TV camera and monitor. The camera is set at the front of the study hall with 100 seats in its field of vision. By this means a costly teacher is relieved from the distasteful chore of study



POWDER ADHERES TO DISCHARGED AREAS OF PLATE







**PUPILS STUDY** under the eye of the TV camera at New London, Wisc.; high school study hall. Closed-circuit television system installed by General Precision Laboratories sends picture to monitor set where school secretaries can check up.

hall supervision. The pupils have accepted the plan and completely ignore the camera's presence. The superintendent is convinced that the system will save the school money and at the same time provide for a better use of teacher talent.

### ***Tape Library of Heart Sounds***

The AHA "Tape Library of Heart Sounds and Murmurs" now contains the following magnetic tapes for teaching:

1. A 30-minute reel with 37 separate sounds and murmurs, prepared

by Dr. J. Scott Butterworth, Dr. Maurice R. Chassis and Dr. Robert McGrath, New York University Postgraduate Medical School.

2. A complete course in cardiac auscultation reproducing 216 different sounds. It comprises nine reels and takes about 4½ hours to play. It was prepared under the direction of Dr. W. Proctor Harvey, Georgetown University Medical Center.

3. A set of 30 individual continuous loops of typical heart sounds, contributed by Dr. George D. Geckeler, Dr. William L. Proudfit, Dr. Franklin D. Johnston and Dr. J. Scott Butterworth.

All recordings are available in two speeds, 1½ inches per second and 7-½ inches per second. It should be noted that only high fidelity play back equipment is suitable for low pitched heart sounds (40-1,000 cycles per second).

Information relative to purchase may be obtained from The American Heart Association, 44 East 23rd Street, New York 10, N. Y.

### **Medical Films Have Improved**

The standards of medical film production have risen very noticeably during the past two or three years. This was the consensus of a panel discussion which followed the screening of the films in the medical sciences category at the Golden Reel Film Festival.

The winner of the Golden Reel Award was "Fractures about the Knee" produced by Churchill-Wexler Film Productions for the Veterans Administration. Winning silver awards were "Still Going Places! Active Management of Disability in the Aged" and "The Bronchopulmonary Segments, Part I: Anatomy and Bronchoscopy." Both silver award films were entered by Chas. Pfizer & Co., Inc.

Dr. David S. Ruhe, former director of the Medical Audio-Visual Institute and now head of the department of audiovisual education, School of Medicine, University of Kansas, was a consultant on both silver award

films. Dr. Leo L. Leveridge, a former fellow of the M.A.V.I., is the director of the Medical Film Department of Pfizer Laboratories. "Still Going Places!" was produced and directed by George Stoney, whose previous productions include "A Concept of Maternal and Neonatal Care" and "All My Babies," both for the Medical Audio-Visual Institute.

### **Video Tape Now a Practical Reality**

Orders are now being taken for tape recorders which record pictures as well as sound. The initial use of video tape recorders will be to replace film for the kinescopes and filmed television programs on the TV networks.

In essence the recorder is operated like a sound tape recorder with a camera feed-in as well as a microphone feed-in. A picture may be recorded, shown back, and rerecorded if not satisfactory. The tape may be erased in the same manner as audio tape.

On the technical side the tape produces a 320 line signal, is 2" wide and travels at the rate of 15 inches per second. The reels are sufficiently large for 65 minutes of program. The present model will record and reproduce only in black and white but the Ampex Corporation, the manufacturer, predicts color use in the near future.

### **20/20 Readability for Your Slides**

Letters on a lantern slide should be no less than one millimeter in height for normal audience readability says William A. Osburn in the *Journal of the Association of Medical Illustrators*. If artwork is to be photographically reduced for the standard 3¼" x 4" slides, care must be taken to have sufficiently large letters before reduction. "Book Type" on IBM typewriters will stand double reduction; i.e., the typing must be done on an area of 5½" x 6", for reduction to 2¾" x 3", the masked area of a slide. If the smaller "Modern Type" is used, it must be limited to an area 4.12" x 4½" before reduction.

A minimum magnification of the image in projection is also necessary. It is generally recommended that the screen be no less than 1/5 of the length of the room in which it is used. Thus a 30-foot room requires a six-foot screen. These factors as well as the considerations of neatness and contrast are fully discussed by the author. Likewise a chart is provided giving the reduction ratios allowed by various sized letters, including Leroy template, used in the original artwork. The concept of minimum visual angle is used as a basis for minimum letter size determination.

"Factors Determining the Legibility of Lantern Slides," WILLIAM A. OSBURN; *Journal of the Association of Medical Illustration*, Number 7, 1955.

## FILM REVIEWS

### Non-Syphilitic Venereal Diseases

25 min., sd., color, 16 mm., 1955

Gonorrhea's points of attack are diagrammed; drops for ophthalmia neonatorum are demonstrated; male urethritis diagnostic stain and culture procedures are illustrated; Rx with penicillin is shown. Non-gonococcal urethritis is seen. Chancroidal ulcers and buboes demonstrate pathology and Dx by culture, smear and skin test; Rx with sulfonamides is indicated. Lymphogranuloma venereum's genital and inguinal lesions precede animation of rectal involvement; Frei test Dx, and Rx with tetracyclines are included. Granuloma inguinale's penile, inguinal, vulvar and anal lesions are shown; biopsy of tissue for Dx and Rx with streptomycin and dihydrostreptomycin are shown. A title summary on therapy concludes the film.

This illustrated lecture covers in simple fashion the clinical manifestations, Dx and Rx of four venereal diseases, incidentally introducing Squibb products and trade names in obvious fashion. A brief case atlas of lesions is supplied. Organization of the film is simple and straightforward; filming and animation are workmanlike.

For students and practitioners the film will provide a superficial visual introduction or review of the four diseases considered. The companion film "Syphilitic Venereal Disease" is available. In this day of ebbing acute venereal diseases, the film will serve an important

use, despite its product commercialism and small items which may be considered objectionable. DSR, with K.U.M.C. Panel, February 1956.

Audience: Students of medicine, practitioners.

**Production Data:** Sponsor: E. R. Squibb & Co.; Producers: Sturgis-Grant Productions, New York; Scientific Advisers: Evan W. Thomas, M.D., and Simeon E. Landy, M.D., New York University.

**Distribution:** Film Library, E. R. Squibb & Sons, Squibb Building, 745 Fifth Ave., New York 22, N. Y. Loan.

### The Hela Cell Strain (Living Human Cells in Culture)

11 min., sd., b&w., 16 mm., 1956.

This is an orientational film demonstrating a method of preparation and the cytology of the living Hela Cell Strain. The film is enhanced by brilliant photography utilizing phase contrast optics and time lapse technique.

A method of culture preparation is depicted and the growth of the culture is photographed. Nuclear movements, mitoses, chromosomal activity, filopodia and hydrocytosis are visualized.

Careful editing is reflected in this stimulating, rapidly moving and ennui-free film. The excellent photography and camera versatility contribute to the magnificence of this unique film.

The inclusion of pertinent factual data would render the film more effective, particularly for the uninitiated. Specifically it should be noted that the technique of culture preparation is one of several, e.g., pepsin digestion; and that the cytologic phenomena is also seen with normal cells. The potential impact of the knowledge gleaned from cytologic studies upon cellular physiology could be advantageously inferred, e.g., the relationship of filopodia to the "cell membrane."

This film is recommended for medical students, biologists, physicians interested in the advances of medical sciences and those concerned with tissue culture growth characteristics. *Comm. on AV Ed., Mass. Med. Society, May 1956.*

Audience: Medical students, biologists, physicians.

**Production Data:** Sponsor: Abbott Laboratories, North Chicago, Ill.; Producer Wynne S. Eastman, for Medical Audio-Visual Institute of the Association of American Medical Colleges; Authors: C. M. Pomerat, Ph.D., T. C. Hau, Ph.D., and P. S. Moorhead, Ph.D., University of Texas Medical Branch, Galveston, Texas.

**Distribution:** Medical Audio-Visual Institute, Association of American Medical Colleges, 185 N. Wabash Ave., Chicago 1, Ill. Rental: \$2; Sale: \$35.

# Book Reviews

## Cardiovascular Surgery

Edited by **Conrad R. Lam, M.D.** W. B. Saunders Company, 1955.

This volume contains the proceedings of the symposium on cardiovascular surgery held at the Henry Ford Hospital, Detroit, Michigan, March 1955. It is a comprehensive review of recent developments in the field of surgery of the heart and great vessels.

The first portion of the book is concerned with some of the newer diagnostic methods employed in evaluating congenital heart disease. Of particular interest were the techniques of angiocardigraphy which had been developed in Scandinavia.

The second section was devoted to physiologic studies related to the field of cardiovascular surgery. A clinically significant paper in this group was presented by Dr. Dammann which suggested possible adjustments between the systemic and pulmonary circulation in the presence of congenital heart disease. This work, if substantiated by subsequent clinical experience, should aid in the selection of cases requiring closure of intracardiac septal defects.

The third section considered some of the newer surgical techniques currently being tried for the relief of rheumatic heart valvular disease. In addition, a comprehensive panel discussion on the correction of interatrial septal defects, including a new method presented by Dr. Sondergaard, indicated that excellent results could be achieved by several different techniques that had been developed for their surgical closure. Brief reports on direct vision intracardiac surgery employing cross circulation or hypothermia also were submitted.

The conference was concluded with papers concerning the successful surgical treatment of aneurysms and occlusive diseases of the aorta. The presentations by Dr. Bahnson and Dr. DeBakey in this field represent important advances and permanent contributions to cardiovascular surgery.

I. A. Meeker Jr., U.S.C.

## The Physician and the Law

**Howland H. Long.** Appleton-Century-Crofts, Inc., N. Y., 1955. 284 pages.

This small volume comes nearer meeting the requirements of the undergraduate medical student than any other book on the subject. Sixteen of its 18 chapters are devoted to medical jurisprudence. The first five of these deal with the legal aspects of the patient-physician relationship and with the causes, preventions and defenses against charges of malpractice. Included among the topics covered by the other 11 chapters on laws and legal procedures affecting medical practice are the autopsy, the commitment of the insane, artificial insemination, criminal medical practices, malpractice insurance, collection of professional fees in workman's compensation cases, and the deportment of the expert witness in court.

The two chapters dealing with legal medicine, i.e., the application of medical knowledge to the administration of justice, occupy approximately one third of the book. In them is included a discussion of sudden death from disease, injuries by mechanical violence and the use of blood grouping tests in cases of disputed paternity.

The subject material is presented in a lucid and succinct manner. Appended to each chapter is a short but useful bibliography. As might be expected when a lawyer undertakes to make a medically authoritative presentation of medical matters, the text is not uniformly good. The two outstanding deficiencies of the book are (1) a lack of adequate attention to the role of trauma in the causation and acceleration of disease processes, and (2) a complete absence of attention to the medical and medicolegal aspects of poisoning. In a book of this type the omission of any discussion of alcohol and drunkenness, and of the responsibility of the mentally disturbed individual under criminal and civil law constitute regrettable defects. In consideration of the great need that medical students and physi-

cians have for a small and concise book dealing with both medical jurisprudence and legal medicine, the author is to be commended on his accomplishment.

A. R. Moritz, *Western Reserve*

### Clinical Laboratory Diagnosis

Samuel A. Levinson, M.S., M.D., Ph.D., and Robert P. MacFate, CH. E., M.S., Ph.D.; Fifth Edition. 1195 pp. Lea & Febiger, Philadelphia, 1956.

This is the fifth edition of "Clinical Laboratory Diagnosis," first published in 1937. It maintains the high standards of the previous editions. Fifty pages, 23 illustrations and 25 tables have been added, and as in the preceding 4th edition of 1951, there are 13 plates, 11 of which are now in color. This edition retains the format, typography, legible type, good grade glossy paper and easy readability of the preceding editions. The subject material is well organized, systematic and well balanced. The text is authoritative, thorough and up-to-date. Extraneous material is reduced to a remarkable degree. The authors have kept in mind advances both in clinical laboratory procedures and methodology which are of most use to the laboratory worker and physician.

Some chapters have been completely rewritten. Revisions and many changes have been made in each of the 20 chapters. The chapter on hematology has been completely rewritten by Doctors Limarzi, Lewis and Best. The chapter on bacteriology has been rewritten, and the sections on toxicology and parasitology have been extensively rewritten. Recent changes in diagnostic procedures have been added in all sections. As in previous editions, the presentation is brief, thorough and practical. Most sections contain a brief review of the basic anatomy, biochemistry, and physiology involved sufficient to orient the reader and to assist in correlating the normal with abnormal findings. As in preceding editions, the principle and the interpretation is given for each test.

The very useful chapter on laboratory methods in pediatric procedures is continued, although reduced from 60 pages in the former fourth edition to 25 pages in this edition. This is accomplished by incorporating the hematology sections, previously in the pediatric chapter, into the hematology chapter in the present edition. Nothing has been lost and the book is improved by this.

The chapters on histologic technique are very serviceable, and well indexed and tabulated. The chapter on legal

medicine and toxicology is valuable to the practicing pathologist.

An important and useful continuation from other editions is Table 142, "Important Laboratory Tests in the Common Disease." This ready alphabetical listing of diseases and applicable tests is particularly convenient for the practitioner, or to anyone not practicing clinical pathology on a full-time basis.

This reviewer likes this convenient, useable placing of references at the bottom of each page. The 38-page index is excellent and does not refer the reader to another portion of the index—that banal procedure followed by some authors—but in every instance the index directs the reader to the next page where the material looked for may be found.

The objective of this book is stated to be to present to the medical student, intern, resident, and practicing physician, as well as the medical technologist, a suitable review of clinical laboratory diagnosis sufficient to meet their general needs. The book certainly succeeds in doing this.

It is in addition an essential text for the practicing clinical pathologist, and is unqualifiedly recommended to physicians, students, medical technologists, and to clinical pathologists as a succinct and authoritative text in clinical laboratory diagnosis.

Frank B. Queen, *Oregon*

### Psychological Medicine

Deamond Curran, M.B., F.R.C.P., D.P.M.; Maurice Partridge, M.A., D.M., D.P.M. E. & S. Livingston Ltd., Edinburgh and London, 1955, 406 pp with index.

This 406 page book is offered as an introduction to psychiatry for the student and practitioner. It is a scholarly effort and demonstrates an excellent form, grammar, style and readability. One can only wish that all texts be so well written.

The authors identify themselves as students of Meyer and opponents of psychoanalysis. The book is organized around Meyerian principles with the emphasis on the environmental molding of the constitutional forces within an individual. There are three main factors recognized as being involved in the production of psychiatric illness and these are constitutional, physical and psychological. The psychological factors are greatly minimized as part of the anti-Freudian bias presented. The etiological factors in schizophrenia are flatly stated as being primarily constitutional with

psychological factors being insignificant or unimportant. The case for this seems to be based heavily on the findings in Gjessing's syndrome where faulty protein metabolism is demonstrated as an etiological factor.

The Meyerian approach to this introduction to psychiatry represents the major drawback to its acceptance as a general text for the American student of psychiatry. There are additional disadvantages inherent in the British birth of the book since statistics, examples and idiom are all so oriented. This no doubt serves to clarify for the British student, but detracts for the student here. One additional source of confusion exists in the diagnostic classifications that are not readily convertible to the APA nomenclature.

The book can in no way be recommended as a text for the purpose of which it was written. It might find limited usefulness as a text in comparative psychiatry or serve as a technical model in writing a book.

C. Craig Nelson, Utah

#### **Diseases of the Chest**

By H. Corwin Hinchshaw, M.D., Ph.D. and L. Henry Garland, M.B., B.Ch.; W. B. Saunders Company Philadelphia, 1956.

Bewildered by our present day prolific production of scientific periodicals and books it is unusual to be able to comment that one book fills a niche in the library to perfection. "Diseases of the Chest" will be regarded by physicians as a key book in this important specialty.

The writers of this book are outstanding in the field of chest diseases and roentgenology. This is a happy combination. The material is well organized and beautifully illustrated throughout by x-ray plates of unusual clarity. The chapter on segmental anatomy of the tracheobronchial tree and lungs is recommended to those who are struggling to remember these difficult relationships. The authors have achieved continuity and uniformity by wisely avoiding the pitfall of inviting a large number of authorities to contribute. Such subjects as pulmonary function and foreign bodies in the respiratory tree are delegated to specialists. The author of the latter emphasizes "think of a foreign body!" repeatedly. Repetition is a well known technique in lecturing students, but becomes tedious in a text.

The reference material has been carefully selected and compressed to the irreducible minimum. A unique feature

is the frequent addition of a descriptive sentence which encourages the reader to browse further in pursuit of information on a specific subject.

The reviewer is impressed by the wisdom and judgment of the authors. Friendly advice is given to physicians where it is most important. Controversial subjects such as the place of "bedrest" and "what is the best chemotherapeutic regimen for tuberculosis?" are presented in an unbiased manner. The reader will be pleased to find in this book a vast amount of knowledge presented in readily absorbable form.

John R. Curtis, Wisconsin

#### **A Textbook of Pharmacognosy**

N. M. Ferguson, *The Macmillan Company* New York, N. Y., 1956, VII 374 pp., \$6.50

The objective of the author of this text has been to present the general subject matter in pharmacognosy from a "biochemical" point of view. To do this, important constituents of many plant and some animal drugs have been assembled under major chemical headings, i.e. carbohydrates, glycosides, fats and related products, volatile oils, etc., and almost half of the contents are arranged according to a therapeutic classification such as enzymes, blood derivatives, bacterial products, allergens, antibiotics, vitamins, etc. The general physical and chemical properties of each group are discussed, whereupon representative crude drugs and their constituents associated with the chemical or therapeutic group are described.

Unfortunately, the text includes very little biochemistry from the point of view of enzyme kinetics, cellular function and activity. Indeed, this is relegated to a section of seven and a half pages under the title "Basic Plant Processes" which reviews certain aspects of photosynthesis, plant respiration and some plant physiology. The major part of the text is devoted to a chemical consideration of U.S.P. and N.F. drugs, each drug being described by a monograph style. Numerous structural formulae and tables are included.

This approach in the study of pharmacognosy is similar to the methods employed in textbooks dealing with pharmaceutical chemistry and medicinal chemistry and thus is not a new approach to the study of natural drug substances. On the other hand, the text would hardly fulfill the requirements for a medicinal chemical teaching text covering natural products because the



details given are rather superficial in that regard. Since emphasis has been placed on chemical properties to the curtailment of botanical and physiological subject matter generally looked for in pharmacognosy textbooks, the latter aspects are noticeably missing.

On the other hand, the introductory chapter gives a brief consideration of many essential details for students of pharmacy on the production of crude drugs, evaluation of their constituents and adulteration. Probably its chief virtue is the concise manner in which it brings together these fundamentals and some pertinent chemical properties of a number of crude drug materials in outline form.

Forest J. Goodrich, *U. of Washington*

### THE ANNUAL SURVEY OF PSYCHOANALYSIS

#### A Comprehensive Survey of Current Psychoanalytic Theory and Practice

John Frosch, M.D., Nathaniel Ross, M.D., Sidney Tarachow, M.D., and Jacob A. Arlow, M.D., editors. New York, International Universities Press, Inc., 1956. 682 pages, \$10.00.

This book covers a well-documented, readable review of books and articles in the field of psychoanalysis for 1952. Complete references for the works described in the text are provided in the 263-item bibliography at the end of the book. A feature of great usefulness is the easy access to information on these items as provided by placing in brackets the page numbers on which the items are discussed. The 28-page index adds to the usefulness of the book which is an outstanding and necessary addition to the library of anyone interested in the humanities, especially the psychiatrist.

The organization of the book is notable in that the reader is not left with a scattered series of impressions, since the individual section not only presents summaries of important papers carefully classified and related to each other so that their place in psychoanalytic thought can be seen, but each section has a brief concluding paragraph which summarizes the achievement and trends of the particular field studied during the year.

The main sections deal with critique and methodology, ego psychology and instinct studies, clinical studies, dream studies, psychoanalytic child psychiatry, psychoanalytic studies in psychiatry,

psychoanalytic studies in psychosomatic medicine, psychoanalytic therapy, applied psychoanalysis and psychoanalytic books.

The psychoanalytic book section is of particular value in that it contains extensive summaries of such books as Kris' "Psychoanalytic Explorations in Art," Scheidlinger's "Psychoanalysis and Group Behavior," Bond's "The Love and Fear of Flying," Benedek's "Psychosexual Functions in Women," Brody and Redlick's "Psychotherapy with Schizophrenics," Burlingham's "Twins," French's "Integration of Behavior," etc. There is a book list of 31 books.

The editors of this annual survey are to be congratulated in that they have not only maintained but even improved on the high standards they showed in their previous volumes.

Elvin V. Semrad, *Harvard*

### The Financial Problems of the Academic Life: Two Possible Solutions. (Abstract)

Lawrence S. Kubie, Harvard Alumni Bulletin, September 24, 1955.

The author proposes that teachers, research investigators, ministers and social worker's financial worries be solved through modification of present tax laws and through a system of paid insurance and annuities. The hypothesis is that if educational institutions are tax exempt, the professional people who run them should be completely tax exempt as well. Assuming that such legislation would not be passed, the alternative suggestion is that the rate be sharply reduced, possibly on a schedule which would be determined by the number of years of training which these professions require. It is reasoned that this could be done without disturbing the government's income too much (about 2,000,000 individuals would be affected) while making academic salaries go much farther. It is then suggested that risks of accidents, illness and death, the financing of the educational requirements of this groups children, and the costs of an adequate old-age retirement program for them, be covered by over-all insurance and paid for by the government, private industry and possibly life insurance companies. These organizations would contribute on the basis that they benefit most from the results of services of educators, researchers, ministers and social workers.

Financial security for these four groups would attract enough people to the field and let them work comfortably

without income worries. The author recommends that administrators of schools, churches and institutions combine to present such a plan to the people of the country, state legislators and Congress.

**Handbook of Medical Library Practice.**  
2nd ed.

Janet Doe, Mary Louise Marshall, editors.  
American Library Association, Chicago,  
1956. 601 p. \$10.00.

Probably no other specialty in library science has a manual that so adequately covers both its bibliographical sources and its current practices as the new edition of this handbook, first published in 1943. With no increase in size, the material has been rearranged, the format improved, and two topics not even listed in the index of the first edition (Photoduplication and Public Relations) have been expanded into chapters.

Although the 13 contributors and the editors are, with one exception, from medical school or large reference libraries, they bring a varied experience to the task of describing the history, the administration, the technical processes and the bibliographical resources of the medical library.

The volume is stronger on description and bibliography than on statistics. The authors of the chapters on administration and acquisition, in particular, have ranged widely in the literature seeking yardsticks for an adequate medical library, but it is obvious that the profession has not yet developed the body of data made available to the college library in the past quarter century by surveys and service studies, accrediting association standards and the compilation of statistics by its professional associations.

In this edition, the bibliography of reference works and histories in medicine and the allied sciences is presented in a single annotated list of nearly 200 pages. Double columns, an alphabetical subject arrangement, excellent type selection and running headings much improve its usefulness. It is likely to be a major tool of the reference librarian for years to come, and should be familiar to every research worker undertaking an historical survey.

In view of the considerable detail in some chapters devoted to standard library techniques, one misses mention of other matters of special concern to a scientific library: for instance, selection of a serial record or, for that matter, such small but prickly details as lending

policies on current periodicals, or library fines. However, no librarian can fail to find it a well documented guide to good current practice and a source of help on such occasional problems as planning a building, selecting a micro-card reader, or filing a portrait collection. The volume will be an admirable teething ring for library school students and inexperienced assistants, and for the non-librarian who has been placed in charge of a medical collection. The small library with frequent turnover of staff can probably least afford to be without it, to fortify a sequence of unspecialized or untrained librarians, and to save the administration costly mistakes in policy by such sensible advice as that on reclassification.

Medical school administrators and library committee members will probably find the lively chapter on administration the most rewarding. The chapter on public relations should be required reading for all staff members and for student assistants as well.

Helen Crawford, Wisconsin

**Medical Parasitology—Laboratory Manual**

By Glenn L. Hoffman. Burgess Publishing Company, Minneapolis 15, Minnesota. 1956. 98 pages.

This laboratory manual was designed to serve the following purposes: listing of the parasites of man; supplying keys for identification of human parasites; providing brief descriptions of methods of preparation of parasitic material and to list common and available sources of living parasitic material for study.

The manual will probably be most useful for premedical students with a course of at least 3 or more semester credit hours. Unfortunately, few medical schools devote sufficient hours in their curriculum to parasitology to provide for coverage indicated in this manual. Various keys are included which need additional explanation or illustration except in the case of the pictorial keys of diptera, mosquitoes, flies, fleas, lice, ticks, mites, and cockroaches. These pictorial keys have been borrowed from the Communicable Center of the U. S. Public Health Service.

The common and available sources of living parasitic material from domestic animals or insects is extremely helpful and should stimulate teachers of medical parasitology to present more classroom material that is living.

E. Harold Hinman, Minnesota

# The Personnel Exchange

## Faculty Vacancies

• **TEACHING FELLOW IN OPHTHALMOLOGY:** Position available immediately. Applicant must have completed at least two years of approved residency training and be licensed, or eligible for licensure in Indiana. Salary \$6000. Apply to Fred M. Wilson, M.D., professor of ophthalmology, Indiana University Medical Center, Indianapolis 7, Indiana.

• **BACTERIOLOGIST:** Assistant professor, Dalhousie University Medical School. Teaching of medical and science students. Opportunities for clinical and academic research; new laboratories being planned. Apply stating salary expected to the professor of Bacteriology, Pathological Institute, 62 University Avenue, Halifax, Nova Scotia.

• **MEDICAL WRITER:** "Gray flannel suit" type, 25-35 years old with imagination, science background and talent for concise, effective prose. Job entails contacting physicians; planning scientific convention displays; writing, directing medical movies. Salary dependent on experience and demonstrable ability. Liberal benefit program. Eastern manufacturer. Send complete resume. Address: V-45.

• **M.D. or PH.D.:** Well-experienced in diagnostic microbiology and in teaching medical students who desire to work in the microbiology department of a medical school and in the laboratory of a large hospital. Vacancy to be filled before the beginning of the next academic year. The starting salary depends on background and experience, but for a qualified person would range about \$7000 per year. Teaching obligations are moderate, time for research work with satisfactory opportunities and equipment. Address: V-46.

• **PSYCHIATRIST:** Opening for full-time employment in VA hospital. Acute intensive treatment service affiliated with Baylor University College of Medicine and Texas Medical Center. Teaching of residents as well as care of patients is required. University appointment commensurate with qualifications. Superior opportunities to do laboratory as well as clinical research. If certified, depending on qualifications, pay may be as high as \$13,760. Also, excellent opportunities for experience years after residency to prepare for certification. Write Manager, VA Hospital, Houston, Texas.

• **PSYCHIATRIST:** Full time for school of medicine, active teaching and treatment program. Salary open. Address: V-47.

• **ASSISTANT PROFESSOR OF PHARMACOLOGY:** Ph.D. or M.D., latter preferred. Teaching, administration and research. Salary \$4,500-\$6,000 depending upon qualifications and experience. Address: Dr. M. F. Murnaghan, Department of Pharmacology, University of Ottawa, Ottawa, Ontario.

• **PREVENTIVE MEDICINE:** Administrative-teaching position teaching public health to medical students; coordinating preventive medical services and medical supervision of an outpatient service. Address: Dean F. G. Gillick, Creighton University School of Medicine, Omaha 2, Nebraska.

• **ANATOMIST:** Instructor or assistant professor with M.D. or Ph.D. degree. Half time teaching, half time research. Well equipped laboratories and excellent library. Opening July 1, 1986. Prefer young man with broad training. Address: Dr. S. I. Kornhauser, Chairman, Dept. of Anatomy, University of Louisville, School of Medicine, 101 W. Chestnut St., Louisville 2, Ky.

• **PH.D.'s:** In the general field of microbiology, immunology, virology, bacteriology and pathology. To assist in virus research for manufacturer of veterinary biologics, vaccines and sera. Principal activity toward new product development, experimental and clinical studies of products, product improvement and techniques and standards of production. Address: V-48.

• **BACTERIOLOGIST:** Assistant professor and assistant bacteriologist, Provincial Laboratory (combined appointments). M.D. with some experience of hospital or public health bacteriology. Initial salary \$6,250 plus cost of living bonus, approximately \$300. Promotion to associate professor on satisfactory service. Apply to the dean, faculty of medicine, University of Alberta, Edmonton, Alberta, Canada.

• **ANESTHETIST:** For two or three year appointment at the American University Hospital in Beirut, Lebanon, beginning in summer or fall of 1986. Academic rank of assistant, associate or full professor depending upon experience. Apply by air mail to: Dr. Joseph J. McDonald, Dean, American University of Beirut, School of Medicine, Beirut, Lebanon.

• **POSITIONS IN INTERNAL MEDICINE AND MEDICAL ONCOLOGY:** At research institute affiliated with medical school. Excellent opportunity for both clinical and basic research. Generous intramural budgetary support. Tenure. Address replies to Division of Internal Medicine, Roswell Park Memorial Institute, Buffalo 3, New York.

To aid in solution of the problem of faculty vacancies, MEDICAL EDUCATION will list persons and positions available, as a free service. The school department or person may have the option of being identified in these columns or of being assigned a key number for each position listed. Mail addressed to key numbers will be forwarded to the person or department listing the request.

Information for these columns should reach the Personnel Exchange, Journal of Medical Education, 185 N. Wabash Ave., Chicago 1, Ill., not later than the 10th of the month which precedes the month in which the listings will appear.

## Personnel Available

• **INTERNSHIP:** Well-trained; qualified use of radioisotopes. Available September 1956. Desires clinical faculty position on salaried basis, either full-time or part-time with private practice privilege. Military service completed. Age 30; married, with family. Address A-210.

• **ANATOMIST:** Man; D.D.S., 30. Veteran. Experienced in teaching gross anatomy, histology, embryology, neuro anatomy, some pharmacology, in approved medical school. Have completed 3 years of medicine in approved medical school. Desire teaching position with opportunity to complete work for M.D. in return for tuition and stipend. Prefer U.S. or Canadian school but would consider foreign locality. Available immediately. Address: A-213.

• **BIOCHEMIST:** Ph.D., 34, married. Experience in microbial growth factors, isolation of bacterial toxins and animal nutrition. Presently research associate in medical school studying relationship of nutrition to antibody formation. Desire teaching and research in medical school or membership in hospital research team. Address: A-214.

• **PHYSIOLOGIST-PHARMACOLOGIST:** Ph.D. 1953, 37, male, family. Majored in physiology while worked toward Ph.D. degree, taught physiology and pharmacology the last two years as assistant professor. Desire teaching and research or teaching position either in physiology or pharmacology. Available July 1956. Publications. References. Address: A-215.

• **PHARMACOLOGIST:** 33, veteran, Ph.D., with one year post-graduate research stressing localization of site of action of drugs on the central nervous system with well known pharmaceutical company. Desires research preferably in neuropharmacology with or without teaching. Publications. Address A-216.

• **ANATOMIST:** Ph.D. Woman. Seeks academic position. Address: A-217.

• **ZOOLOGIST-CYTOLOGIST:** Ph.D. June 1936. Male, married, no children. Interested in problems of growth and differentiation on the cellular level as studied by cytochemical and classical cytological methods. Experience in cytochemical methods for chromosomes, nucleic acids and basic nucleo-proteins. Desires either an academic post with facilities for research or a straight research position. Address: A-218.

• **PATHOLOGIST:** 33, board certified in pathologic anatomy and clinical pathology. M.D. Illinois, 1945. Experience in diagnostic pathology, experimental pathology, and teaching. Faculty appointment. Publications. Desires position combining hospital pathology with opportunity for teaching and research. Address: G. A. Nedzel, 45 E. Bellevue Place, Chicago 11, Illinois.

• **INTERNSHIP:** Hematology, radiobiology specialties. Passed Internal Medicine Board written examination. Four years radiation-hematology research. Director radioisotope laboratory. Desires academic-type research position with opportunity for clinical hematology teaching and practice. Available summer 1956. Address: A-219.

• **BIOCHEMIST:** Ph.D. 25. At present holds a postdoctoral research fellowship sponsored by the National Institute of Health. Research concerned with alcohol metabolism. Fellowship expires June, 1956. Desires teaching position with research opportunities. Address: A-220.

• **PARASITOLOGIST:** Ph.D., male, unmarried. Has Ph.D. in parasitology from University of California, Berkeley, California. Two and a half years of experience in teaching and research in parasitology. Currently engaged in a study of the epidemiology of certain parasites of animals and man; engaged in summer in studies of fauna in Arctic areas. Desires teaching position. Have prepared lecture notes in medical and veterinary entomology, helminthology and protozoology and medical bacteriology. Address: A-222.

• **INTERNIST:** 34, Australian, M.D., M.Sc., seeks university clinical research teaching post with view to permanent residence in U.S.A. Excellent training in basic sciences (pathology, bacteriology) and internal medicine in Australia, England, France, U.S.A. Publications, society membership, teaching experience. Main interest cardio-pulmonary disease. Would accept fellowship initially in cardio-pulmonary group. Address: A-223.

• **DERMATOLOGIST:** Diplomat of American Boards, candidate for Ph.D., with extra training in microbiology and histopathology, interested in clinical, research and teaching opportunities. Age 33; draft exempt. Department head preferred. Address: A-224.

• **PARASITOLOGIST:** M.S., Ph.D., certificate in tropical and military medicine. Retired army officer, 34, with 18 years experience in university teaching of undergraduates and graduates and 13 years varied experience in field, laboratory and teaching in army. Desires full or part time position in medical school. Special interest parasitology and tropical medicine. Scientific publications, books. References. Available in fall. Address: A-225.

• **PARASITOLOGIST:** Ph.D., June 1956. Experienced in teaching, laboratory and field research, desires teaching and/or research position in Parasitology, related fields or basic medical science. Available May, 1956. Eastern location preferred but others considered. Address: A-226.

• **PHYSIOLOGIST, PARASITOLOGIST:** Ph.D. University of Michigan. Twenty years experience teaching and research. Willing to teach nurses, medical technologists, etc. Desires full time academic appointment. Address: A-228.

• **INTERNIST:** 35, present medical school faculty member. Rounded clinical and teaching experience. Extensive original investigation, publications in metabolism and related fields. Radioisotope techniques. Board certified. Desires full-time teaching position with opportunity for investigative contribution. Address: A-229.

• **ANESTHESIOLOGIST:** Foreign graduate; female; trained in institution with medical school connection. Seeks position with teaching institution or similar. Address: A-230.

• **PHARMACOLOGIST:** Ph.D., 29, atomic research, publications, some teaching. Entering junior year of medical school. Desires part-time academic post to complete medical program. Address A-231.

• **PHYSIOLOGIST-ZOOLOGIST:** Ph.D., 34. Training and interest in endocrinology and cell physiology. Presently engaged as research associate in biochemistry. Desires academic and/or research position. Address: A-232.

• **INTERNIST-CLINICAL CHEMIST:** M.D., 40, male, family. Now head physiology, hospital medical research foundation; medical school appointments assistant professor clinical pathology. Presently engaged animal and clinical research and teaching (medicine, clinical pathology, pharmacology experience). Fulltime hospitals and/or medical schools 10 years, including 5 years head 400 bed hospital clinical chemistry section. Diplomat American Board Pathology; American Board Clinical Chemistry. Major interests: water and electrolytes, diabetes, carbohydrate metabolism and endocrinology. Address: A-233.

• **BIOCHEMIST:** Ph.D. Now assistant professor of biochemistry at medical school. Fifteen years' teaching experience, over 40 publications in the field of enzymes, proteins, lipids and biochemistry of cancer. Seeks position in institution with good research facilities and appropriate remuneration. Excellent references supplied on request. No regional preferences. Address: A-235.

• **INTERNIST-PHYSIOLOGIST:** 34. Interests in cardiovascular research and teaching. Experienced in cardiac catheterization. Presently full time faculty appointment. Desires academic situation offering future and opportunities in field of stated interest. Address: A-236.

• **MICROBIOLOGIST:** Ph.D., 31, married. Five years teaching experience in general and medical bacteriology, immunology, mycology, and virology. Total of six years experience in virus and cancer research. Presently engaged in full-time virus research. Desires faculty appointment (asst. prof.) with teaching and research opportunities. Address: A-237.

• **INTERNIST:** 39. Especially interested in metabolism. Previous experience with isotopes. Certified by American Board in internal medicine. Fellow of American College of Physicians. Would be interested in heading section or department in geographical full-time teaching position with a medical school. Assistant professor of medicine past two years. Outstanding record including numerous publications in the past. Address A-238.

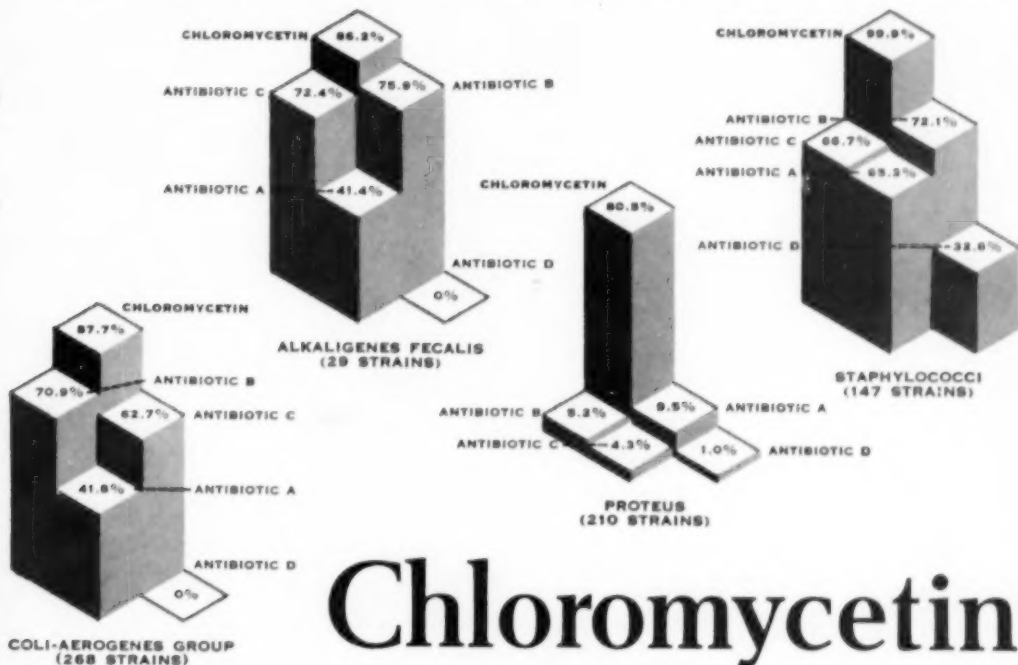
• **Obstetrician-Gynecologist:** 38. F.R.C.S. (C). Canadian. Married. Board eligible. Presently holding teaching fellowship in Canadian university, wishes part or full time teaching appointment in American university. Address: A-239.

• **VETERINARY PATHOLOGIST-BACTERIOLOGIST:** D. V.M., Ph.D., 37, male, married. Background in comparative pathology, infectious diseases and mycology. Nearly 8 years research experience and part time teaching. Assistant professor, member of a number of scientific organizations. Publications. Desires position primarily research with minimum of teaching. Would consider medical school appointment with opportunity to complete requirements for M.D. degree. Address: A-240.

\*This graph, based on *in vitro* studies, is adapted from Weil and Stempel.<sup>6</sup> It represents the second and concluding part of data presented in a previous issue. Studies were made at the Bronx Hospital, New York City, an institution representative of the situation in large general hospitals.

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references: (1) Tebrock, H. E., & Young, W. N.: *New York J. Med.* 55:1159, 1955. (2) Bunn, F. A.; Canarile, L., & Eastman, G.: *New York J. Med.* 55:3607, 1955. (3) Perry, R. E., Jr.: *North Carolina M. J.* 16:567, 1955. (4) Horton, B. E., & Knight, V.: *Tennessee M. A.* 48:367, 1955. (5) Weil, A. J., & Stempel, B.: *Antibiotic Med.* 1:319, 1955. (6) Altemeier, W. A.; Culbertson, W. R.; Sherman, R.; Cole, W.; Elstun, W., & Fultz, C. T.: *J.A.M.A.* 157:305, 1955. (7) Jones, C. P.; Carter, B.; Thomas, W. L., & Creadick, R. N.: *Obst. & Gynec.* 5:365, 1955. (8) Austrian, R.: *New York J. Med.* 55:2475, 1955. (9) Sanford, J. P.; Favour, C. B., & Mao, E. H.: *J. Lab. & Clin. Med.* 45:540, 1955. (10) Munroe, D. S., & Cockcroft, W. H.: *Canad. M. A. J.* 72:586, 1955. (11) DeVries, J. A., & Pritchard, J. E.: *Canad. M. A. J.* 73:827, 1955.



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